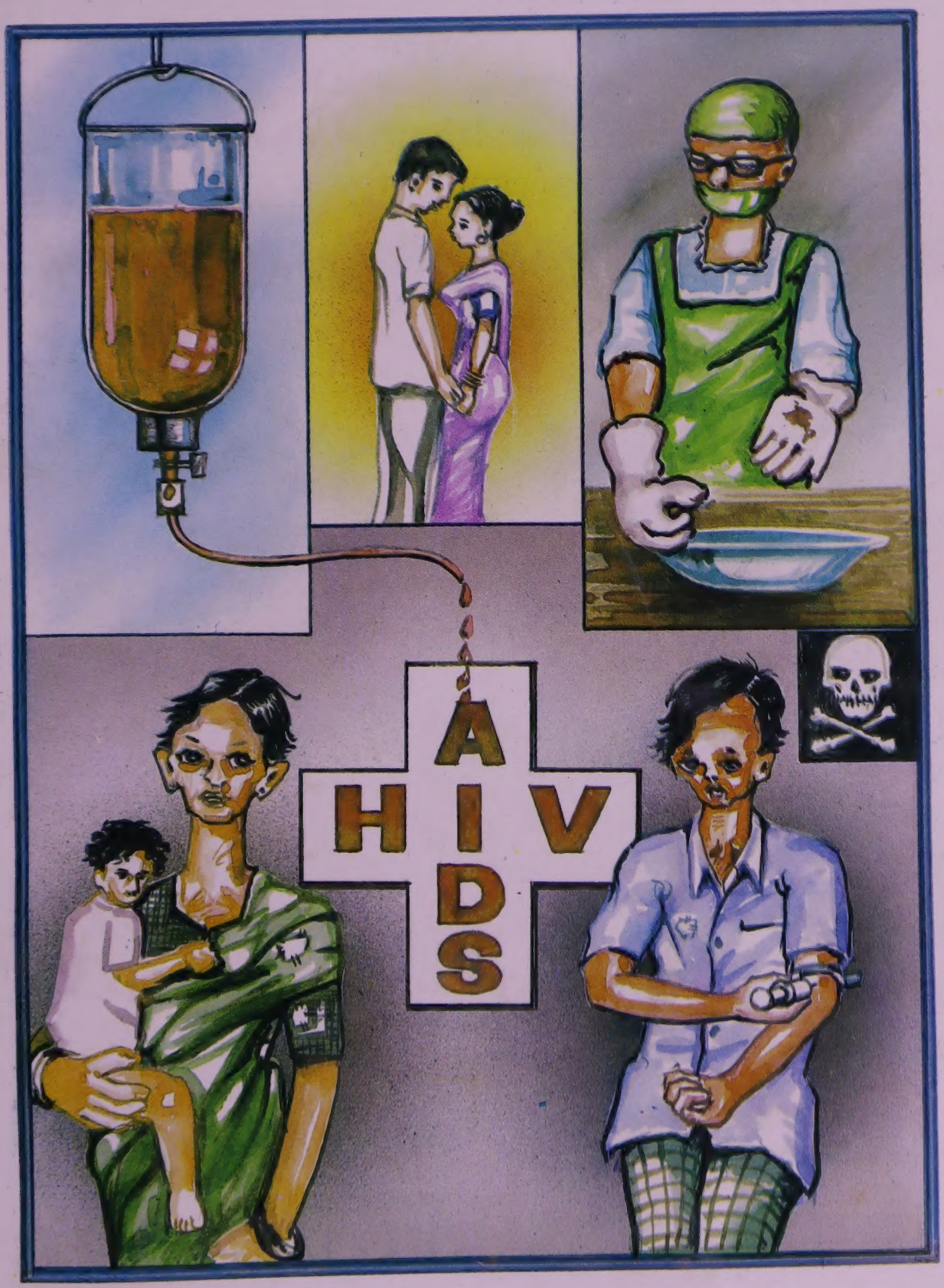
HIV and AIDS in India
– An update for Action



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HIV and AIDS in India – An update for Action

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FOREWORD

The first case of AIDS was detected in India in 1986. There was incredulity and disbelief at that time. It is no longer so in 1993. Within a span of less than a decade, over 11,400 confirmed cases of HIV infection and 300 cases of AIDS have been detected in the country. The composition and distribution of cases clearly indicate that the infection has not only taken roots but is also fairly well-distributed throughout the country. And it is affecting both the rich and the poor alike.

Inasmuch as HIV/AIDS has neither a vaccine nor any cure, its control programme is enormously difficult. One has to know the routes of transmission of the virus and take the necessary preventive measures to ensure that one does not get infected. It is not easy as it involves moulding or changing one's behaviour. Mere awareness is not enough, it must be strong enough to influence behaviour. However, the first stage has to be generation of knowledge and awareness. The Indian Society of Health Administration (ISHA), through their publication on "HIV and AIDS in India : An Update for Action", have contributed significantly to this process. This book has not only focussed attention on the various facets of HIV/AIDS, but also pinpointed several key issues in the preventive strategy. I have no doubts in my mind that this book will be a very useful training material apart from its general use for dissemination of knowledge and as a stimulant for further action. My warm congratulations to the Indian Society of Health Administrators for continuing their crusade to improve the health scenario in our country.

(P.R. DASGUPTA)

PREFACE

HIV and AIDS, first recognized in USA in 1981 and named Human Immuno-Deficiency Virus (HIV) in 1986, has presented a challenge, more specifically a threat, to the medical sciences and health professionals. We are faced today, within less than a decade with an expanding pandemic, highly dynamic and volatile disease. It is continuing to spread in every community and country which has thus far been affected.

In India, there are presently an estimated one million HIV infected persons. By 2000 A.D., it is estimated that there would be over 10 million, unless aggressive preventive programmes are initiated.

Projections into the future are only estimates. The Global AIDS Policy Coalition, an independent international research group based at the Harvard School of Public Health, projects that nearly 20 million will become HIV infected by 1995, and that by the year 2000 between 40-100 million adults, plus 10 million children, will have been infected worldwide.

With the establishment of National AIDS Control Organization, under the leadership of Additional Secretary at National level, and nodal officers at the State level, organizational machinery has been established and significant progress has been made to improve clinical management and surveillance activities. Training programmes for physicians and para-medical personnel at State and district levels are being planned. Blood Safety Programmes have been initiated to ensure adequate supply of safe blood to blood banks. National blood transfusion system is being modernized and strengthened. Training programmes for training of blood bank personnel from the public sector are being planned. STD Control Programme has been taken up in a big way by NACO and STD Clinics are being strengthened in terms of supply of equipment and development of manpower.

ISHA is committed to development of health personnel, policies, programmes and systems through training, research, and consultation, and publications. In the light of the above urgent concerns, this Publication on HIV and AIDS in India, is prepared to provide guidelines for action to professionals,

administrators, and non-professional health personnel of public, private, and voluntary organizations. The contents of this Book should be read along with the section on "Added Notes and Corrections".

We are thankful to the Additional Secretary and Project Director of National AIDS Control Organization, Shri P R Dasgupta, and his staff to review the Document, and for writing the Foreword for the Publication. We are thankful to NACO for recommending this Document for use as training material for professional updating of medical and para-medical personnel as well as for creating general awareness among the masses.

We are also extremely thankful to Dr U Ko Ko, Regional Director, WHO, Dr N K Shah, Acting WHO Representative to India, and their colleagues in the WHO-AIDS Cell to review thoroughly the Draft Document and make constructive comments and suggestions. Their suggestions have been incorporated. These comments have enriched the contents of the Publication.

ISHA hopes that with professional capabilities, and commitment of professionals and administrators in the public, private, and voluntary sector, and with effective utilization of limited infrastructure resources, we can, and we will, control HIV-AIDS in India.

May 1993

Dr Ashok Sahni

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Added Notes and Corrections

I. Added Notes

The Draft Document of this Publication was sent to National AIDS Control Organization and WHO as well as other professionals in India for their comments and suggestions. Comments were received from some organizations and professionals. Since the Publication was needed immediately for training programmes in North Eastern States, it was printed. Subsequently, additional information was received from NACO as well as comments from WHO. This section updates the information in the Publication and also lists out the corrections in the Publication.

WHO currently estimates (1) that there have been approximately thirteen million men, women, and children infected with HIV since the start of the pandemic, about one million of whom are children. This represents an increase of about one million infections since mid- 1992. The majority of the new infections have occurred in sub-Saharan Africa and South and South-East Asia.

The Global AIDS Policy Coalition - an independent international research group based at the Harvard School of Public Health - projects that nearly 20 million people will become HIV infected by 1995, and that by the year 2000 between about 40 and 110 million adults - plus atleast 10 million children - will have been infected worldwide.

Over 500,000 AIDS Cases have been officially reported to WHO; yet a more realistic estimate is that over two million adults and over 600,000 children have developed AIDS since the beginning of the pandemic.

Looking ahead to 1995, we estimate that an additional four million people will develop AIDS - so that many more people will be developing AIDS during the next two years than the total number during the entire history of the pandemic until now. This also means that the number of children orphaned by AIDS will be more than double in the next two years; from approximately 1.8 million today to nearly four million by 1995.(2)

According to NACO, the AIDS cases in India, as on 31st March 1993 are 310. Table 1 gives details. Table II gives the breakdown of AIDS cases in India with regard to male and female, Indian and foreigners. Table III provides information on probable source of infection in India. Table IV provides details and break-up of Sero-positives.

National AIDS Control Organization is committed to the cause of AIDS control and prevention.

NACO has drawn up challenging programmes for 1993-94. It has already identified the key areas for intervention and has initiated the execution of its activities in a phased manner. The major programmes are as follows:

1. NACO is going to revamp and strengthen the existing surveillance systems.

2. In order to improve the clinical management and surveillance activities, training programmes for State level Physicians Responsible for AIDS Case Management (PRAMS) are planned. It is proposed to train 64 State level PRAMS and 1200 district level PRAMS during 1993-94.

3. NACO is carrying out a Blood Safety Programme with the aim of ensuring adequate supply of safe blood to blood banks. National Blood Transfusion systems is being modernized and strengthened. During 1993-94, it is proposed to take up 187 blood banks for modernization.

4. In order to revitalize the use of blood and blood products, fifteen component separation facilities are being set-up during 1993-94.

5. An extensive programme is being undertaken for training of blood bank personnel from the public sector.

6. STD Control Programme has been taken-up in a big way. 372 STD clinics of the country are being strengthened in terms of equipment and manpower.

7. The Case Management Guide-lines are being reviewed to improve the treatment systems.

8. Information, Education, and Communication programmes are being stepped up to bring out positive changes in the risky sexual practices. A sustained mass-media campaign is being launched.

9. NGOs are being involved in a big way. Workshops are being planned for training nodal agencies and NGOs.

10. In order to generate AIDS awareness among the youths, national level and regional level workshops are being planned. Some of the programmes are being implemented in collaboration with Department of Youth and Sports Affairs.

11. Programmes are being designed to ensure an easy access to good quality, affordable and acceptable condoms.

II. Corrections

Page 1 - Incubation Period:

The present incubation period is from six months to twenty years. The mean incubation period of AIDS, at present, is recognized as nine to ten years.

Page 2 - Origin of AIDS:

It was earlier thought that HIV originated in Central Africa and spread to the Western world. Increased evidence shows that its origin from Central Africa is not very strong. We would await findings of future research as to its origin.

Page 3-Paragraph 5

Instead of "transmission of AIDS in Asian countries", it should be read as "transmission of HIV in Asian countries". By international tourism is meant all travellers, tourists, NRIs and seamen travelling to-and-fro countries.

Page 4 - HIV Transmission:

Majority of the transmission is through unprotected sexual inter- course.

Paragraph 8

HIV-II has a longer incubation period ..... to larger (not large) number of people.

Page 7-Paragraph 14

HIV transmission in the general population has been highest through the commercial sex workers (not prostitutes). Throughout the rest of this Book, instead of the word "Prostitutes", the word should be changed to "Commercial Sex Workers".

Page 8-Paragraph 16-c: To be deleted

Page 11-Paragraph 18 - Incubation period:

As pointed out earlier, the incubation period is currently from six months to twenty years with a mean incubation period of AIDS, at present, is recognized as nine to ten years.

Page 12-Paragraph 21

According to WHO, the present survival period is being studied, and is in many cases more than two years. (ISHA hopes it would become much longer and the AIDS positive cases will be able to live much longer with treatment)

Page 13-Paragraph (c) ii: Read T4 Type (instead of T5 Type)

Page 18 - Risk of acquiring HIV through different routes:

Risk of acquiring HIV through different routes such as Heterosexual or blood product transfusion, HIV infected mother to infant transmission, Homosexual Inter-course, needle prick injuries and semen and organ donations, particularly kidney or any other vascular organ. It may be noted that even though percentage-wise the risk of sexual transmission is lower compared to transmission through blood transfusion, sexual transmission is still the main route of transmission. In a country with large population, such as India, with migrant labourers from rural to urban cities and approximately 30-40% of the population in major urban cities as slum dwellers, the proportion of HIV positives infected by sexual transmission is likely to increase and the overall percentage of this mode of transmission is likely to increase greatly.

Page 21-Paragraph 33 (v) - Prevention of Peri-natal Transmission of HIV:

According to the Global AIDS Strategy of WHO, Peri-natal transmission of HIV should be prevented through:

i) Prevention of Sexual Transmission in child bearing women.

ii) Avoidance of child bearing of HIV infected mothers. If a woman gets pregnant, termination of pregnancy, even though recommended by many professionals and researchers, is not a recommendation of WHO or ISHA.

Page 22 - Approaches to Preventing HIV Infection:

Since the risk of acquiring HIV infection is primarily through sexual transmission, all around the world sexual value systems are being examined. Since sexual behaviour is more a habit rather than a need, AIDS now forces the society to examine one's sexual behaviours in an honest manner. There is an increased risk of HIV transmission in the presence of STD (ulcerative diseases, as well as those causing discharge). The major intervention strategy is to attempt early diagnosis and treatment of STD. As pointed out earlier, realizing the importance of early diagnosis and treatment of STD, NACO has plans to strengthen the STD clinics throughout the country.

Page 24-Paragraph (b) - Use of Condoms:

Properly used, good quality condoms, have a higher protection rate than 70%, as breakage does occur less frequently. It is recommended that Mono-xynol-9, a lubricant which is viricidal besides being spermicidal, be used as condom lubricant.

Page 24-Paragraph (c) - Risk Individual:

Any individual is classified as "risk individual" who has heterosexual relationships with

multiple partners, unprotected sexual intercourse with the spouse who has multiple heterosexual or homo-sexual relationships, homo-sexual relationships, receives unprotected blood or blood products, health workers (medical and para-medical), working with HIV-AIDS patients, or users *of common shaving blades, razors for head-shaving, tatooing equipment.*

Page 26-Paragraph 40 (b)

According to WHO, the latest studies have shown that AZT does not affect the progression of HIV infection to AIDS.

Page 38-Paragraph (c) - HIV Testing

These are ISHA's recommendations and not necessarily of Government of India or WHO.

According to Dr Anthony Fanci, Director, National Institute of Allergy and Infections Diseases (NIAID), USA, new findings show:

a. Patients with AIDS often live without HIV symptoms for upto ten years.

b. HIV virus is present in the lymph nodes..... and it is actively replicating.... even when there is little or no virus activity detected in the blood.

c. Drugs must be found to combat the AIDS virus from the moment of diagnosis and that therapy cannot be relaxed during periods when there are no symptoms.

Three anti-viral drugs have been licensed to combat HIV in the U.S. These are zidovudine, or AZT; didanosine, or ddl; and zalcitabine, or ddC. Each of these drugs combats HIV by blocking the action of an enzyme, reverse transcriptase, that the virus uses to reproduce.

Since, at present, no treatments (allopathic, ayurvedic, homeopathic and other systems of medicine) are found effective and no vaccines have been developed for prevention of HIV infection, the thinking, research and projections are tentative. New knowledge, research findings, and experiments would, hopefully, help us develop a sound system of projections, mean incubation period, modes of transmission, prevention, and control of HIV-AIDS throughout the world.

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1. World Health Organization. *The Current Global Situation of the HIV/AIDs Pandemic,* January 4, 1993

2. *AIDS and Global Health*, ICMR Bulletin, January 1993

3. World Health Organization. *Personal Communication from Acting WHO Representative to India*, May 7, 1993.

Table I

National AIDS Control Programme, India

AIDS Cases in India (Reported to NACO)

(As on 31st March, 1993)

Sl.No.	State/Union Territory	AIDS Cases
1.	Andhra Pradesh	1
2.	Assam	1
3.	Delhi	33
4.	Goa	2
5.	Gujarat	2
6.	Haryana	1
7.	Himachal Pradesh	2
8.	Jammu & Kashmir	1
9.	Kerala	16
10.	Madhya Pradesh	1
11.	Maharashtra	93
12.	Manipur	4
13.	Pondicherry	6
14.	Punjab/Chandigarh	47
15.	Rajasthan	1
16.	Tamil Nadu	92
17.	Uttar Pradesh	1
18.	West Bengal	6
	Total	**310**

Table II

AIDS Cases in India

	Male	*Female*	*Total*
Indian	228	67	295
Foreigner	11	4	15
Total	**238**	**70**	**310**

Table III

Probable Source of Infection in India

	India	*Abroad*
Hetero Sexual promiscous	187	35
Blood Transfusion	33	3
Blood Product Infusion	6	1
Homosexual contact	1	1
Spouse of AIDS pt./sero-positive	9	-
Intravenous drug addicts	9	10
Total	**245**	**50**

Table IV

National AIDS Control Organization

Ministry of Health and Family Welfare, Government of India

Surveillance for HIV Infection in India: (Period for report:)

(October, 1985 to 31st March, 1993)

Details of Sero-positive Individuals Detected:

Number of persons screened	16,59,412
Number of persons sero-positive	11,849
Sero-positivity Rate (per thousand)	7.14

Break-up of Sero-positives:

Sl.No.	*Category*		*Sero-positive*	*% of Total*
1.	Heterosexually Promiscous		5006	42.24
2.	Homosexuals		39	0.33
3.	Blood Donors	1799	15.18	
4.	Patients on Dialysis		100	0.84
5.	Antenatal Mothers		57	0.48
6.	Receipient of Blood/Bld.pdt:		233	1.98
7.	Relatives of HIV patients		98	0.83
8.	Suspected ARC/AIDS Cases		460	3.88
9.	Drug Users i/v	1725	14.56	
10.	Others		2332	19.68
	Total		**11849**	**100.00**

I-- WHAT IS AIDS?

AIDS is a fatal disease caused by HIV I and II, with an asymptomatic, infectious incubation period of six months to six years.

1. AIDS stands for Acquired Immuno Deficiency Syndrome, a disease of wide range of clinical manifestations, ultimately fatal, and caused by a retro virus, the Human Immuno Deficiency Virus. As presently documented, there are two forms of the virus , HIV 1 and HIV 2 . The full blown AIDS disease is preceded by a variable period of two to five years, or even ten years, of asymptomatic infection with HIV, when the person is physically healthy but his blood tests positive for HIV, and he is infective to other people. There is presently no cure for the disease. The chances of discovery of a cure or an effective vaccine within the next five years or more are remote(1).

II-- THE ORIGIN OF AIDS AND ITS TRANS-CONTINENTAL SPREAD

A disease syndrome resembling the presently known features of AIDS, has been described in ancient Ayurvedic literature.

2. Disease syndromes similar to the clinical manifestations of AIDS have been described in the ancient Ayurvedic literature - loss of ojah or tejah (immune force of the body). Sushruta in 800 BC and later Charaka and Vagbhatta, described conditions of "loss of muscle mass, fever, skin eruptions and ulcers, complexion changes, neurological disorders, exhaustion, coma and death", and in the irremediable stages "treatment should be given up (42).

AIDS was recognized by modern medical science in 1981. The causative virus was isolated in 1983.

3. AIDS as a specific disease entity, has been recognized by the medical profession since 1981, when a number of cases of an unusual form of pneumonia, caused by pneumocystis carinii among healthy homosexual men, were reported to the Centre for Disease Control in Atlanta, USA. Other peculiar concomitant features such as profound immuno-deficiency, a rare type of malignancy, Kaposi's sarcoma, etc, were recognized to be varied manifestations of a mysterious "acquired immuno-deficiency syndrome". In 1983 the human immuno-deficiency virus was isolated (2)

HIV is thought to have originated in Central Africa and spread to the Western world through international travellers and/or polio vaccines cultured in African rhesus monkeys.

4. The geographical and biological origins of HIV are not clear. It is thought to have originated in Central Africa based on indirect evidences. Human blood samples collected from Central Africa in 1959 and held in storage, have on recent testing, been found HIV positive (3). Research on stocks of polio vaccines used in the 1950s, in Chicago, have tested positive for the monkey variety of the virus. These vaccines are presumed to have been contaminated from the kidney tissue cultures obtained from African monkeys which were used for nurturing the polio vaccine (4). The known propensity of the human AIDS virus to change its form, suggests that the human AIDS virus might be an altered form of monkey virus. Several American missionary doctors and surgeons who had operated in unhygienic conditions in Africa without gloves, often acquiring injuries contaminated with patient's blood, are known to

have returned sick, in the 1960s, and have died from an unrecognized syndrome similar to the presently known clinical picture of AIDS (5).

First discovered in Western Countries, AIDS was traced back to the silent raging epidemic in sub-Saharan Africa. Transmission in Asia including India began around 1985.

5. The discovery and demonstration of the HIV virus in USA and other Western countries, came about at the period of peak spread in these countries. Subsequently, the tremendous magnitude of the problem in the African countries (particularly in the rapidly urbanizing areas) was documented. It is significant that, the transmission of AIDS in Asian countries consequent to international tourism and medical services, began after 1985, and rapidly gained/gaining momentum in the nineties, depending on the cultural and behavioural practices in the respective countries.

AIDS-like disease without HIV-I and II- Is the virus changing its form?

6. The discovery of an AIDS-like disease in 1992, exactly resembling the clinical course of AIDS, and also in terms of history of risk factors in the patients, but without the patient being infected by HIV virus, is baffling experts. Apart from the ELISA test, even advanced virus probes have shown that the HIV-I and II viruses are not responsible for the disease. About two to three dozen such cases have been found in the United States. Research is on to find out whether a new virus, a mutated form of the HIV is also causing AIDS-like disease,or whether the condition is a manifestation of non- specific immune depression (29,30). If proved to be a mutant form of HIV, this would have serious implications for control of AIDS transmission and development of a vaccine.

III-- THE GLOBAL HIV SITUATION

A. The Present Status

One million of the world's nine to eleven million HIV infected are in India.

7. The World Health Organization has estimated that by the end of 1992, there were nine to eleven million HIV infected cases worldwide, of which about 60% (6.5 million) are in sub-Saharan Africa, about 8- 10% (1 million) are in the United States of America, 4-6% (0.6 million) in Western Europe, Australia and rest of the North American Continent, 10% in Latin America and the Caribbean countries, 2.5-10% (0.25 to one million cases) in India, and the remaining in other East and South Asian countries (6). These estimates are based on epidemiological projections of findings of limited surveys of high-risk individuals in major cities and socio-behavioural studies. Presently, there is a lack of population - based survey information to make accurate estimates.

Three major routes of HIV transmission are sexual route; blood and blood products transfusion/contamination to injured skin; and, mother to child transmission before birth or through breast milk. HIV-I, is more infectious than HIV-II, but causes relatively earlier disease and death.

8. HIV transmission has been occuring through three major routes - sexual mode (heterosexual and homosexual), through blood and blood products transfusion/contamination, and through perinatal route (mother to foetus through placenta), depending upon the local cultural and behavioural practices. Apart from the route of transmission and cultural/behavioural practices, a third factor influencing the transmissibility and pathogenicity of AIDS, is the type of HIV virus. HIV-I which is predominantly spreading in Western and Asian countries is thought to be more infective and evolves more rapidly to AIDS disease, compared with HIV-II which is the dominant type spreading in Africa, and lately discovered in Asian and North American populations also. HIV-II has a longer incubation period and, therefore, has a chance to spread to large number of people before the source of infection succumbs to disease (6). HIV - II has been found to be prevalent in 10-30% of cases in the various surveys, and screening studies conducted so far in India.

B. Epidemiological Patterns of HIV Infection

In Pattern-I (industrialized) countries, ratio of HIV positive males to females is 15:1, in Pattern II Sub-Saharan countries, where epidemic is at the peak, the ratio is 1:1, and in Pattern III (Asian) countries, male to female ratio is 1:1.

9. Worldwide, several distinct patterns of HIV infection are apparent depending on the predominant mode of transmission. In Pattern-I countries typical of industralized countries such as USA and Western Europe, AIDS cases and HIV positivity is currently, largely confined to homosexual and bisexual males and urban intravenous drug users. Ratio of males to females infected in these countries is 10-15:1; consequently, infant (paediatric) AIDS is negligible. However, with gradually increasing heterosexual transmission (from 3% of total HIV positives acquired through hetero-sexual transmission in 1985 to 7% in 1991), HIV positivity among females and paediatric AIDS is increasing. In Pattern-II, or Sub-Saharan African Countries, HIV transmission has been predominantly by heterosexual route, male to female ratio (infected or frank AIDS cases) is one to one; paediatric AIDS is high. In these countries transmission though homosexual activity or intravenous drug use is minimal. In Pattern III countries (Asia, Eastern Europe, North Africa and Middle East), the AIDS situation is presently in a latent stage, transmission of HIV infection has commenced through heterosexual contact, use of contaminated blood for transfusion and unsterile injection equipment, and, intravenous drug use; transmission is proceeding silently and rapidly, the number of "reported AIDS cases" is presently very low, as well as, awareness of the problem among professionals and the population is low. In these countries, which include India, HIV infected healthy persons account for about 8-10% of the world's total, but less than 1% of the "reported AIDS cases/deaths. In the next 5-10 years, these countries are expected to face an epidemic of full blown AIDS, AIDS deaths and paediatric AIDS. In Pattern-III countries also, the ratio of males to females affected is about one to one (6).

Mini-epidemics of HIV infection in children have occurred in the former USSR through unsterile and reused injection needles.

10. HIV transmission and AIDS epidemics traceable to uncommon routes have occured in the Republics of the former USSR, among infants and young children, as a result of the use of unsterile parental injection equipments, re-use of injection need-

les without sterilization, or inappropriate use of blood and blood products (6).

Globally, 60% of the HIV infected have acquired it through hetrosexual intercourse .....

11. Overall, internationally, about one third of the total HIV infected are women, 10% are children. At a global level, 60% of the presently HIV infected acquired it through heterosexual intercourse, 15% through homosexual intercourse, 10% through shared needles by intravenous drug users, 10% through infants getting congenitally infected, and 5% through blood transfusion (6).

Health education in developed countries has rapidly reduced incidence of new HIV cases; in Asia, Latin America and the Pacific, the problem is rapidly escalating.

12. The incidence of new HIV cases has been falling in the high risk groups in the developed countries (Pattern I), as a result of health education and public awareness : for example in USA from 20% prevalence in homosexuals in 1982 to 1% by 1991 (6). In Latin America and Caribbean region, and Asian countries, explosive spread of HIV infection is being observed in the current decade.

C.Global Projections for the year 2000 and beyond

By 2000, 10 million of the world's 30-40 million HIV positive cases, will be in India, majority being the "low-risk group" - housewives and children

13. By 2000, an estimated 30-40 million individuals in the world are expected to be HIV positive, 75% being young adults of the 20-40 age group, majority being in African and Asian countries (affected through heterosexual transmission), 25% (10 million) being infants and children (6). Among the adult HIV positives, vast majority would be the "low risk group" - i.e. the group which does not habitually practise the high risk behaviours for HIV or STD transmission - housewives, and others (6,9,10). Over one fourth to one third of these cases would be in India. And even if the transmission is very drastically reduced by the next one to two years, AIDS cases from the present infected population would continue to overwhelm the health services in all countries (9). By the year 2000, WHO estimates indicate that 10 million would have died of AIDS (3).

IV-- TRENDS OF HIV IN INDIA

The first case of AIDS in India was detected in 1984, acquired from transfusion in the USA for coronary bypass surgery. Since then the cities of Bombay, Madras, Calcutta, Delhi, Pune and Goa have become the centres of rapid HIV transmission.

14. Since the first case of AIDS was reported in India in 1984, caused by blood transfusion in the United States for coronary by-pass surgery, HIV screening in the high risk groups has been carried out systematically by the ICMR in the major metropolitan cities, and sporadically in smaller towns (7). The major route of transmission documented so far in India has been the heterosexual mode (promiscuous males and prostitutes). The high risk groups for HIV and AIDS in India so far have been prostitutes, promiscuous males attending STD clinics, professional blood donors, intravenous drug users in groups, and blood and blood product recipients (especially those requiring frequent transfusions or injections of blood products).

The association of professional blood donors with HIV and sexually transmitted disease, is due to the following :

a) Many intravenous drug abusers become professional blood donors, for the money (42).

b) On an average, they donate blood once in 7-10 days, and standards of sterilization are questionable in many blood banks.

c) Studies have shown that 30% of professional donors have contacts with prostitutes.

HIV transmission in the general population has been highest through the prostitutes of Bombay, Madras, Calcutta, New Delhi and Pune, and now emerging centres of Baroda and Surat. Transmission through intravenous drug use is very high in the entire North Eastern Region, particularly in States sharing a border with Burma. Tamil Nadu, Delhi, West Bengal, Manipur and Gujarat are leading in prevalence of HIV and speed of transmission (7).

From the high risk groups, HIV has been spreading to

15. From the high risk groups, HIV infection has been spreading back to the general population, particularly the housewives.

low risk groups - housewives, infants, children and hospitalized patients.

By the end of 1992, 30% of the HIV infected are women and children. By 1995-2000, HIV would be sufficiently prevalent in housewives and ante-natal cases, so that it would be difficult to delineate "high risk groups" from "low" risk individuals.

16.. Salient aspects of HIV infection in India are as follows:

a) An estimated 0.25 - 1 million HIV positive cases are presently in India and about 2700-9000 AIDS cases may have been present by end of 1991 (7).

Prevalence among high risk groups is rapidly escalating, up from 2% in 1986 to 36% in August 1992 .

b) The prevalence of HIV infection has been rapidly increasing among all the above mentioned above high risk groups. In Bombay and Madras, the prevalence has increased from 2% in 1986 to 36% in August 1992. By their contact with low risk population (spouses or occasional visitors to prostitutes, blood transfusion), the estimated prevalence of HIV in the general population has increased from 1/1000 in 1986 to 6/1000 in 1992 (37).

One new HIV positive in India, every 15 seconds.....

c) One new HIV positive case is being added every 15-20 seconds in India.

India is in the exponential phase of the epidemic - a doubling of prevalence every year

d) Presently India is in the exponential phase of the epidemic with doubling of the prevalence every year (42).

By December 1991, 17 per 1000 pregnant housewives of Bombay were HIV positive.

e) By the end of 1991, the prevalence of HIV positivity among the so called "low risk" antenatal cases (housewives), attending ante-natal clinics in Bombay City was 17 per 1000 (12).

There is every reason to expect 10 million HIV postives in India by 2000. One out of four STD affected persons in the world is an Indian.

f) The number of HIV infected persons could increase to about 10 million by 2000, i.e. a tenfold increase from 1992. This estimate is based on the projection of WHO of 40 million HIV positive individuals in the world by 2000, and the fact that one in every four STD affected individuals in the world is an Indian (3, 9).

By 1996, every third housewife and mother in Bombay would be HIV positive at present transmission rates.

g) By 1996, at current rates of transmission, it is expected that every third housewife in Bombay (and every third antenatal case) would be HIV positive (11). HIV positivity would be prevalent at lower levels in other cities, towns and rural areas.

Even if transmission is drastically curtailed now, we have to prepare for an unprecedented socio-medical-cultural crisis situation by 2000 and beyond.

h) Even if drastic measures are taken to increase access of the public to health education, and reduce transmission through the parenteral routes, etc., the number of AIDS cases that would come up from the existing pool of HIV positives would be enough to overwhelm the health services and socio-cultural-family coping mechanisms., unless the health system and citizens at large are prepared to cope.

This pattern of rapid escalation was predicted by epidemiological modelling as early as 1986, when prevalence was very low and scepticism about HIV transmission in India was widespread.

i) By November 1992, the prevalence of HIV positivity among the prostitutes of Bombay had increased to 36%, and among the heterosexually promiscuous of Bombay to 36%, among professional blood donors to 36%, from only 2% in 1986. Among intravenous drugs users of Manipur HIV seroprevalence has increased to 50% (7,42). This pattern of rapid escalation had been predicted by epidemiological modelling by the ICMR in 1990, when prevalence of HIV in India was still very low (10).

Even youth below 19 form a risk group; studies show 30-40% of urban male youth in metropolitan high schools have had sexual experiences mostly with commercial sources.

j) The risk of HIV transmission is very high among youth even below 19 years of age, keeping in view the findings of recent behavioural studies in high school-going youth upto the plus two level. The studies in the metropolitan cities showed that 30-40% of male youth below 16 attending high schools already had sexual experiences and less proportion of female youth had sexual experiences. This indirectly suggests that good proportion of male youth had the experiences with commercial sources (13).

Industrial workers, married and separated from families due to urban migration, aged 20-40 form a high risk group.

k) Industrial workers form a major risk group. In Bombay, a study of 980 industrial workers showed a HIV seroprevalence of 4/1000; narrowing down further, 1% of those in the age group 20-40 were HIV positive. History of promiscuity was highest among single married persons (i.e seperated families due to urban migration) 24% of these persons aged 20-30 and 32% aged 30-40 gave history of promiscuity (42).

HIV transmission has begun in urban and rural areas of virtually every State.

l) Almost every State which undertook AIDS detection activity among high risk groups even in backward regions, has found significant prevalence of AIDS. Apart from the major AIDS transmission zones reported above, the other States reporting a spurt in the reported HIV cases are UP, Gujarat, Karnataka, Andhra Pradesh, Goa, virtually every State which undertook HIV dètection activity (14,15,16, 38,39).

India and Thailand today, are having the fastest transmission of HIV. In Maharashtra, Goa and Tamil Nadu, the speed of transmission is comparable to the most severely affected sub-Saharan African countries.

m) The World Health Organization has estimated that India and Thailand are the two countries having the fastest transmission of HIV in the decade 1990-2000. Epidemiological studies have shown that in Maharashtra, Goa and Tamil Nadu the speed of transmission is similar to that of the most severely affected African countries (the Sub-Saharan countries). Extensive studies have been largely limited to these three States. Sporadic small scale studies undertaken in rural areas, urban areas, etc., of any and every State, are showing the extent of spread and the tremendous potential to explode into an epidemic (42).

North-Eastern States of Manipur, Mizoram and Nagaland, are experiencing explosive spread of HIV through shared needles by IV drug users. 1-2% of urban population is addicted to IV drugs. In Manipur, 50% of IV drug users are HIV positive.

n) The North Eastern Region has become a major focus of HIV transmission, particularly the States of Mizoram, Manipur and Nagaland which share a border with Myanmar (Burma). 1-2% of the general urban population of these States is addicted to Intravenous (IV) drugs (largely of the age group 15-30 years). Prevalence of HIV among IV drug users ranges between 10% in Aizawl, Mizoram to 50% in Manipur. On an average four partners share a needle. 94% of the surveyed IV Drug users in Mizoram continued to share needles in spite of awareness of risk of HIV, and 73% of them did not even wash the needle. None had heard about liquid bleach as a cleaning agent (42).

V-- CLINICAL COURSE OF HIV INFECTION

HIV-I and II are both prevalent in India.

17. HIV-I is the predominant virus spreading in India, although several samples from prostitutes of Bombay and other cities have shown mixed HIV-I and HIV-II infections (17, 42).

A healthy HIV positive person is infectious for six months to six years. Before becoming HIV test positive, he is infectious to contacts for a fewweeks - the window period.

18. Infection with HIV is followed by a variable period of six months to six years (or more) of good health without any symptom, during which period, person is infectious to others in case of exchange of blood or blood products or certain body fluids - semen and vaginal fluids (2,7). For the infected person to be detected through serological (blood) testing, it may take six weeks to six months from the time of infection. During this latent period, the person remains infectious to the contacts, and in case of women, to the foetus in utero. This period is called the "window period".

Peak age group for HIV infection in India is 20-30 years, with fatal outcome within 5-15 years of infection. Progression to disease and death may be influenced by dietary intake of zinc, selenium, iron and vitamin A

19. The peak age group for HIV infection in India is between 20-30 years (26). Follow-up studies of HIV infected individuals over 12 years show that, 25% to 50% of HIV positive individuals will develop frank AIDS disease by five years (depending on several yet unrecognized factors) , and that, virtually all infected persons would eventually succumb to AIDS within 12- 15 years or so (6). Of the first cohort of homosexual HIV positive men (who were estimated to have been infected in 1979), who were followed up to 1991 (12 years), 85% have developed AIDS (18). On the average it may take six months to six years (or more) to develop full-blown AIDS. It is possible that poor nutritional status, stress of repeated infections, etc., might hasten the fatal course (40). High dietary intake of Iron, Zinc, Selenium and Vitamin A appears to delay the progression from HIV to AIDS. (42).

Cells carrying the CD4 antigen are most susceptible to HIV, important ones being the white blood cells responsible for immunity

20. The virus has strong affinity for the cells with CD4 antigen. Therefore the CD4 subpopulation of lymphocytes (T cell helper cells) and testicular cells are most vulnerable to attack by the virus. However, the virus can and does infect every type of cell, more particularly nerve cells. The virus acts by attacking the

against bacterial diseases. HIV remains dormant for months to years, before rapid multiplication sets into rapidly destroy the immune system.

immune system (destruction of the lymphocytes or white blood cells responsible for cell-mediated im-munity). On entry into the body, it merges with the genetic material of the white blood cells, multiplies along with them to remain lodged in the daughter cells and prevents the cell from being effective. Perhaps triggered by a reinfection with HIV, any other infection, or stress on the system, the virus rapidly multiplies, destroying the host cells and coming out to infect other cells, thus progressively destroying the immune system (3).

Repeated illnesses, unusually severe or prolonged may occur, before full-blown AIDS manifests. Infectivity to others, increases with symptomatic status.

21. Before developing full blown AIDS, the HIV infected person may manifest various symptoms of the AIDS - Related Complex (ARC) from which he recovers intermittently and relapses back. However, the illnesses tend to be unusually severe or prolonged or both. After developing the full blown picture of AIDS, the person survives for less than six months even with prompt symptomatic treatment, (6) or about two years with specific treatment with AZT. The infectivity of the

HIV positive person to others, increases with the intensity of the illness, so that a person or mother with full blown AIDS disease is most infective to other individuals or the unborn foetus (2, 22). Of the infants born with HIV infection, 50% die within one year and almost 100% die by 5 years (2, 10).

A HIV infected person goes through three clinically recognized phases, but any one of the early phases may be skipped.

22. *In most cases, the following three clinical phases of HIV infection are observed. However, any one of the early phases may be skipped, and the full blown picture may appear without going through the other stages (2).*

(a) Acute Phase

Around the time of seroconversion an acute, self-limited influenza-like illness.....

An acute phase of febrile illness within few weeks of infection resembling any influenzal illness with cough, except that it may be accompanied by generalized lymphadenopathy or unexplained rashes. This self-limiting fever usually occurs around the time of formation of the HIV antibodies, person may be still

serologically negative (blood tests negative) but infectious to others.

(b) The AIDS Related Complex:

After a variable period, comes the AIDS Related Complex - prolonged, unexplained fever and other symptoms .....

After a variable period of few months to years, or in continuation of the acute phase, the person may develop persistent lymphadenopathy, persistent/ prolonged or intermittent fever with rashes, unexplained splenomegaly, painful repeated oropharyngeal ulcers not responding to any measure, prolonged cough, any type of neurological deficit or psychiatric symptoms, periods of weight loss and night sweats, persistent severe exhaustion, altered mental function, diarrhoea, tuberculosis, etc. The person recovers from the illness but only after a prolonged period of illness or experiencing very severe illness (2).

(c) Full blown AIDS:

Full blown AIDS in adults is diagnosed under the following conditions: (7)

Full blown AIDS is heralded by illness due to opportunistic infections, Kaposis' sarcoma or dementia.

i) A HIV-positive individual developing illness due to pneumocystis carini pneumonia, Kaposi's sarcoma, cry tococcal meningitis, cytomegalovirus infections (retinitis with blurred vision), or mycobacterium avium intracellulare resembling the clinical picture of pulmonary TB , or unexplained neuro-psychiatric symptoms. Kaposi's Sarcoma is a cancer that may appear on the skin or in the mouth. Two thirds of AIDS patients show moderate to severe dementia and the rate goes up to 90% if mild cases are also included (40).

So also, a T-5 lymphocyte count below 200 per cu.m.....

ii) A HIV positive individual with a lymphocyte count below 200 per cu.mm (of the T5 type).

or clinically, a combination of atleast two major with one minor criteria

iii) A HIV positive person showing atleast any two of the following major criteria combined with one minor criteria as follows:

a. Major Criteria

- Weight loss more than 10% of his normal body weight.

- Prolonged or intermittent fever more than a month.

- Prolonged diarhoea more than a month.

- Extrapulmonary or disseminated tuberculosis at multiple sites.

b. Minor Criteria

- Persistent lymphadenopathy

- Recurrent Herpes Zoster

- Widespread, severe or progressive herpes simplex infection

- Oropharyngeal Candidiasis or hairy leukoplakia of the mouth and/or ano-genital region

- Persistant cough more than a month

- Generalized pruritic dermatitis.

In developing countries where HIV sero-testing facilities are not widely available, the above combination of criteria (two major plus atleast one minor), is enough to suspect AIDS for referral to a testing centre (7).

Clinical Course of HIV infection in India

Clinical course of HIV and AIDS in Indians is similar to that in Western Countries, perhaps in accelerated form in India.

23.. All the above clinical pictures have been seen in multiple combinations in Indian patients. One clinical manifestation which is uncommon in Indian patients is toxoplasmosis. It is now becoming clear that outcome and mortality in HIV positive Indians is similar or perhaps, even accelerated compared with patients in Western countries. In fact, the WHO estimate of approximately 10% of HIV positive persons needing professional attention due to symptoms, appears to be an under-

estimate for India, since several hospitals (TN Medical College, Bombay, J J Hospital, and GT Hospital of Bombay) have found that about 30-40% of HIV positive persons have a symptom or illness interfering with normal life (42).

Tuberculosis and AIDS

Uncontrollable pulmonary or disseminated tuberculosis is the leading cause of death in Indian AIDS patients

24. In India, tuberculosis assumes very major significance in the context of HIV. About 37% of HIV positive cases present with tuberculosis. 17% of HIV positive persons presenting with non-neurological symptoms have neuro- tuberculosis (meningitis, tuberculoma or disseminated TB). Autopsy studies have shown that about 53% of AIDS deaths in India are caused by tuberculosis. Disseminated lesions in all organs, swarming with TB bacilli are frequently found, suggesting high infectivity of these patients (42).

An average AIDS patient in India survives about four and a half months.

25. The mean duration from diagnosis of AIDS to death, in India, is about four and half months. (CMC, Vellore - Ref No: 42).

HIV in infancy leads to 100% mortality by age five.

26. In paediatric AIDS, the child has recurrent severe attacks of respiratory infections, oral thrush, splenomegaly with lymphadeonopathy, failure to thrive and eventually, weight loss, diarrhoea, or malignancy. The child may show hypergammaglobulinemia, but has low immune capability (7). Mortality is almost 100% within five years of birth.

Nutritional deficiency may hasten onset of disease and death.

27. Studies of HIV positive persons who progressed to AIDS, show that nutritional deficiency of iron, selenium, zinc and Vitamin A could hasten the onset of disease. Increased intake of these nutrients in diet could possibly delay the onset of disease. Specific diet with concentration of these nutrients is possibly beneficial in frank AIDS cases (42).

VI-- PUBLIC HEALTH SIGNIFICANCE OF HIV

The Elisa Test for HIV

ELISA Kits used in India at AIDS Surveillance Centres are standardized and highly reliable. The Rapid HIV-I and II test by immune filter disc method is useful for emergencies, but results must be confirmed by ELISA. All declared ELISA positives have been tested twice and therefore, results are reliable, but to double check, they must be confirmed by Western Blot test. Each ELISA test costs the Government US $ 2.

28. Presently, blood is being tested for HIV-I and II by the ELISA test (Enzyme -Linked Immuno-Sorbent Assay) which detects antibodies specific to the virus. The kits being used for testing in India are those approved by Food and Drugs Administration (FDA) of USA, subject to minimum 95% specificity. Most kits eg. Abbot, are 96-98% specific. Therefore, false result and positivity are rare. The small chance of false results can be overcome by repeating the test. The technicians of the AIDS Surveillance Centres are sufficiently trained and standardized. The ELISA test takes about two hours to complete. To cope with emergent situations such as, the need to test blood for emergency blood transfusion, a rapid immuno filter method of getting the results within 5-10 minutes, has been developed by Clonatec of France and being marketed in India as "Rapid HIV I and II". This test is only indicative and not diagnostic. Until this test is fully cleared as being comparable with ELISA, it is advisable to get every positive case detected by this method, confirmed by the standard ELISA at the nearest HIV surveillance centre. The Clonatec Rapid test is far more expensive than the ELISA (costs approximately Rs.200/-). Many private hospitals are offering this test. When there is no urgency, only ELISA should be preferred.

The serum samples on ELISA testing, are classified as negative, positive and indeterminate (titre in the gray zone), based on specifications of the particular kit manufacturers. Those which are in the indeterminate zone only, are likely to be negative by Western Blot (ie. false ELISA postive). However, all indeterminate cases are to be followed up but without creating panic. All labs are today doing a repeat test on all positive sera, therefore a declared positive HIV can be safely taken as true positive for all practical purposes. There is no need to await Western Blot result when certain urgent matters are pending (such as recommending pregnancy termination in a pregnant mother).

The ELISA test today costs the Government approximately $2 per test or approximately Rs. 60/-. The confirmatory test is the Western Blot which is highly specific for HIV-I and II. All ELISA positives detected at laboratories other than the AIDS Surveillance Centres authorised by the Government of India, have to be confirmed again at the AIDS Surveillance Centres. All ELISA positives at these Centres are to be sent to the Reference Labs (listed in a subsequent section) for confirmation.

Socio-economic implications of HIV

Due to long incubation period, young adults leave behind young children when they die. By 2000 and beyond, any number of families with only grand-parents and grand-children, no able-bodied adults?

29. HIV is known to be most rapidly spreading in the age group of 20-40 years. Thus, males and females in the peak of their socio- economically productive period and reproductive period are being affected. Due to the long incubation period, widespread deaths of parents of young children resulting in orphaning of children, deaths of spouses resulting in widowing, and deaths of young children infected from HIV positive mothers, are expected to occur which would strain the families' and society's resources - emotional, infrastructural and economic resources, to cope. In several Sub-Saharan countries where rapid HIV transmission started in the late 1970's and 1980's, and now facing the AIDS epidemic, there are large number of villages with only grandparents and orphaned grand- children, and few or no able- bodied adults, even to do the basic domestic chores and to grow food for subsistence.

At present transmission rates, India could face a 10-20% fall in GNP.

30. The frequent disabling illnesses that precede death, are also expected to have major impact on the national economy. Absenteeism, loss of mandays and low efficiency at work would adversely influence agricultural, industrial and service sector productivity. *Thailand, which is in a similar epidemiological situation as India, has estimated that its Gross Domestic Product could fall by 10- 20% over the next five years if drastic measures to reduce transmission were not taken, and in fact the GDP would still fall considerably even if drastic measures are taken, due to the cases arising out of the presently infected population (19).*

Risk of acquiring HIV through different routes

31. The risks of infection and facts related to risk, through the various modes are as follows:

Hetrosexual intercourse with infected partner without condom use carries upto 50% risk. Any genital inflamation in either partner increases the risk

i) Heterosexual intercourse (without condom use) with HIV infected person has 1% risk of the uninfected person becoming HIV positive, if neither partner has other genital inflammation. (ICMR - 1990). Genital warts, trichomonas vaginalis, herpes simplex, lymphogranuloma venereum, syphilis, gonorhoea, any and every genital inflammation, greatly increases the risk of transmission/acquiring the infection by 20 to 50 times (46)..

90% risk with blood and blood products.

ii) Infected blood or blood products transfusion - 90% (7).

Infant of infected mother has 20-45% risk.

iii) HIV infected mother to infant transmission - 20-45% in case of asymptomatic mothers, and much higher in symptomatic mothers. [Caesarean section does not reduce the risk (6, 22)].

Homosexual intercourse more risky than hetero-sexual intercourse.

iv) Homosexual intercourse - In case of homosexual intercourse , the risk is higher than with heterosexual intercourse (due to rectal mucosal tears) (6).

Contaminated needle prick or contamination of infected blood over injured skin surfaces carries 1% risk.

v) Needle prick injuries of contaminated injection needles, contact of HIV infected blood/serum/semen to injured skin or moist, dermatitic areas of health worker's fingers; blood or amniotic fluid splashing into eyes or nose or mouth, while conducting delivery or surgery - Risk of becoming infected through these routes less is than 1% (2).

HIV positive semen and organ donation is highly risky. Corneal donation may be risk-free.

vi) Semen and organ donation particularly kidneys or any other vascular organ from HIV infected donor has very high risk (3, 6). Out of seven kidney transplants carried out in London in 1992 from commercial Indian donors in Bombay, three recipients developed AIDS, and two became HIV positive (39). So far no case of transmission through corneal transplant has been documented in spite of thorough follow-up. It may be

noted that HIV testing of cadaver blood gives reliable results, so that every cadaver to be utilized for organ transplant should be tested for HIV (30). Artificial insemination with semen from unknown donor to help infertile couples is today, a common procedure in Indian cities. The risk of HIV transmission to the woman and her child would be high, even if HIV testing is done since the person may be in the "window period" of infection.

SPIRITUALITY AND HIV !

HIV Transmission Through Innocuous Routes

1. HIV transmission can occur through very innocuous, even shocking routes, unless the public and concerned authorities become aware and take precautions. Ritual tonsuring of the head at religious places (shaving of the scalp done for religious reasons), can lead to an innocent devotee unwillingly acquiring HIV, through infected razors used for hundreds of persons in an assembly line fashion. If the "devoted" tonsurer has previously nicked the scalp of some HIV positive devotee, then risk to his subsequent clients is high. Also, getting one's face shaved in assembly line is common during large religious melas and congregations. It may also be noted that likelihood of getting HIV infection through these routes is quite significant, since prostitutes in towns of religious importance are known to have high prevalence of HIV due to very high floating population and multiple objectives of tourists. It has been observed that several tourists who come for devotional purpose also frequent the prostitutes. In a world-famous town of religious importance in South India, HIV prevalence among prostitutes was found to be 25% towards the end of 1992.

2. A second innocuous route can be the common razor used in hair-cutting saloons and by village barbers who shave customers without changing or disinfecting the blade. In the rural areas majority of the males get shaven by the village barber and heaven forbid, if his razor has shaved and nicked unsuspectingly a HIV carrier, who may be a truck driver or industrial worker visiting his family on holiday.

3. Piercing the ears, tatooing and ritual circumcision, if done in groups, can be riskly unless sterile instruments are used for each person.

Keeping in view the above aspects, it is urgently necessary to:

a) Educate the public, particularly about these hazards, and how to take precautions.
b) Take religious authorities and health authorities of places of religious importance into confidence to ensure adequate disinfection procedures at places of mass tonsuring/barber services.
c) Take mandal panchayat leaders and other village level officers/leaders into confidence to educate the public and rural barbers to prevent HIV transmission through barber services.

VII-- MATERNAL AND CHILD HEALTH VIS-A-VIS HIV

Pregnancy probably hastens onset of AIDS in HIV positive mothers.

32. As indicated above, HIV is expected to become widely prevalent among mothers in India, atleast among urban mothers, by 1996 to 2000. Pregnancy adversely influences the advancement of HIV infection into AIDS disease in the mother by adversely affecting the immune capability (42). Infectivity of the mother to the foetus increases with symptomatic status of the mothers (22). A pregnant mother with frank AIDS is highly infective to foetus (22).

33. Implications of HIV positivity among mothers are as follows:

(i) A 25-50% of risk of HIV transmission to the infants and consequent deaths. HIV positivity among mothers would affect the underfive mortality rate as follows: (10).

(a) Prevalence rate of 5% HIV positivity among mothers would increase the under five mortality rate by 9%.

5% prevalence of HIV positivity among others would increase under-five child mortality by 9%.

(b) 10% maternal HIV positivity would increase the U-5 mortality by 18%, and so on. (In Uganda, with a HIV prevalence in women of 24%, the infant mortality rate increased by 38% and underfive mortality doubled (ICMR, 1990).

(ii) 50% of HIV infected infants are expected to die within the first year of life, and almost 100% by the end of five years (10).

Breast-feeding transmits the virus.

(iii) Breast feeding can transmit the virus. However, the benefits of breast-feeding outweigh the risk (22).

Results of HIV testing in infants are inconclusive for several reasons.

(iv) It is difficult to conclude about HIV infection among infants, since non-infected infants may show HIV seropositivity upto 18 months after birth due to passive transfer of

antibodies from the mother (22). For an infant's immune system to produce his own anti-bodies to a real HIV infection, it may take few months and meanwhile the infant may be HIV sero-negative in this period.

HIV positive women or their husbands should undergo sterilization, or if already pregnant, pregnancy termination. As a mother to her living children, every year of life prolonged is vital.

(v) Keeping in view the risk of child death or risk of orphaning the surviving child due to the mother's death, the most optimum course for HIV positive women is to contracept, preferably with terminal methods, and in case of early pregnancy, to terminate the pregnancy (10, 22). Since recent studies have shown that pregnancy probably hastens the onset of immunodeficiency and eventual death (42), contraception or pregnancy termination is advisable in the nterest of the mother's health and keeping in view the need of her living children for maternal care.

VIII-- APPROACHES TO PREVENTING HIV INFECTION

34. *HIV infection can be prevented by the following personal and public health measures (3, 6, 8)*

Do's and Don'ts about preventing HIV- Avoid sex- with high risk partners, minimise blood transfusions, promote voluntary blood donation, use only HIV screened blood and organs for transplantation, strict sterilization procedures, use protective face mask, goggles and disposable gloves for conducting delivery or surgery of HIV positive person.

a) Not having sexual relationship with prostitutes, promicuous persons or persons with multiple sexual partners.

b) Vigorous promotion of voluntary or relative's blood donation; minimise or avoid the use of professional donor blood.

c) Use of only screened blood and blood products for transfusion. (It is now mandatory for every unit of blood permitted for transfusion to be accompanied by a certificate that the blood is free from HIV, serum hepatitis and syphilis.)

d) Minimize blood and blood products transfusion unless absolutely essential for saving life - try to use synthetic substitutes wherever possible. It is estimated that with a HIV positivity incidence of 1% among the donor population, 9-10 blood units per 10,000 would be in the "window period "and therefore infectious but HIV negative by the ELISA, since the ELISA test detects antibody and not antigen (42). Therefore, as far as possible blood transfusion should be avoided. For unavoidable transfusion, most or all the blood should come from voluntary blood donations. Therefore, voluntary blood donation drives should be an essential activity of every blood bank.

e) It is very essential to publicise that blood donation itself is not a risk factor for HIV, so long as disposable or sterile needles and syringes are used. Many voluntary blood donation camps have started facing reluctance of healthy persons to donate blood on account of this misconception..

f) Mandatory screening of donors of blood and organs: As far as possible attempt to do HIV test of cadavers used for cornea donation also.

g) Strict enforcement of sterilization procedures for syringes, needles and other invasive equipment, and restricting to one single use, the needle and syringes after sterilization. Before reuse, the syringes and needles must be throughly cleaned of all

organic matter and, be boiled for atleast 10 minutes. This must be strictly followed in every hospital, PHC, general practitioner's clinic, dispensary, FP/eye operation camp., etc..

h) Wide publicity to the hospitals and health institutions about the known effective disinfectants against AIDS (1% chlorine or bleach, spirit or 70% ethyl alcohol, 2% gluteraldehyde, 6% hydrogen peroxide), with a 30-minute contact period. Bleach (1% chlorine) is the most effective in the presence of organic matter (blood or faeces etc). Bleach is prepared by dissolving three heaped tablespoonfuls (about 40gms) of fresh bleaching powder (which has 25% chlorine) in one litre of water. The supernatant is 1% bleach. Boiling for ten minutes is enough to inactivate the virus. (48).

i) Advising HIV positive women or their spouse to go in for contraception, particularly, a terminal method; in case of early pregnancy to advise medical termination of the pregnancy (ICMR - 1990).

j) After any skin contact with blood or body fluids of a HIV infected person, wash thoroughly with soap and water (2,3). Thorough washing with soap and water is the most easily available and effective method against infection. Just as prevention of rabies after dogbite by a rabid dog depends more on thorough washing rather than on the anti-rabic vaccine, so also washing with soap and water is highly protective in case of HIV also.

k) Use of protective face mask, eye goggles and fresh sterile gloves while conducting delivery or surgery of a known HIV positive case (2).

l) In case of mouth to mouth breathing being administered in an emergency, please do so by keeping a double layered gauze on the patient's mouth (3). Saliva does not transmit the infection.

35. *The risk of HIV infection can be minimized by the following measures:*

HIV is far less infectious than serum jaundice.

(a) It may be noted that HIV is not at all as infectious as hepatitis - B (serum jaundice), in which even sweat, tears and

saliva are infective. In case of HIV, only blood and cellular-loaded body-fluids are infective and that too, when it comes in contact with mucous membranes (moist surfaces) or injured skin. Casual contact is not infective.

Risk of infection is reduced by 70% by use of latex condoms.

(b) Correct use of fresh unused latex condoms in case of one partner being HIV positive or a risk individual, minimises, but does not eliminate the risk. (The risk of HIV transmission is estimated to be reduced by 70% only, since condoms are known to rupture or come off (11). Old, discoloured or cracked condoms are not advisable nor the membrane condoms (22).

Risk is minimized by limiting to non-penetrative sex acts, in case of infected partner.

(c) In case of one partner being HIV positive or a high risk individual, limiting the sex act to non-penetrative acts such as kissing, etc which do not involve exchange of genital fluids would minimise or eliminate the risk. (However kissing may transmit the virus in case of an injury or ulcer or other lesion in the mouth (3, 22).

HIV is not transmitted through mosquito bites or casual physical contact.

36. HIV infection is not transmitted through mosquito bites, casual physical contact such as shaking hands, hugging and kissing, swimming pools, shared utensils, common toilets or contact with tears saliva, urine, faeces, sweat, etc (2,22).

IX -- TREATMENT OF HIV AND AIDS

The only drug proved clinically effective against HIV is zidovudine (AZT).

37. Till date there is no known cure for HIV and AIDS. No individual, once seroconverted to positive has unequivocally converted to seronegative. Long term results of a homeopathic treatment study by the Central Homeopathic Research Council are awaited in which, among a group of 100 confirmed HIV positives of Bombay, following homeopathic treatment, 12 tested sero-negative . The treatment and follow-up for evaluation are still going on (17). The only clinically effective drug, internationally approved for use in HIV positive persons and AIDS cases is zidovudine (or azidothyumidine), an analogue of thymidine, which is a vital component for formation of nucleic acids (51).

Virus RNA gets converted to DNA in the host cell using reverse transcriptase enzyme, before merging with host DNA.

38. HIV, being a retrovirus (RNA Virus), has to release its genetic material, convert RNA into DNA through reverse transcriptase enzyme which it carries along with the genome, and then the viral DNA enters the host cell nucleus and integrates with the host cell genetic material. Subsequently, the HIV virus, either immediately begins to use the cell machinery to produce more HIV viruses, which then burst out of the cell to infect other cells, or the virus remains dormant within the host genome, getting transmitted to the daughter cells with replication of the host cell, to subsequently enter the stage of rapid multiplication at a later date. Since white blood cells and sperm cells are the most rapidly multiplying and also bear the CD4 antigen which is the receptor specially facilitative to HIV entry, these cellular populations form the most infective materials early in the disease.

Zidovudine inactivates reverse trans-criptase enzyme, thus inhibiting viral entry into host genome.

39. Zidovudine acts by inactivating the reverse transcriptase enzyme, thus inhibiting viral entry into the host genome itself. It is a hundred-fold less potent against host cell DNA polymerase, and therefore hardly interferes with normal process of cellular replication.

40. *Clinical Efficacy*

AZT increases duration of survival of AIDS patients. It also reduces severity and suffering due to opportunistic infections.

a) Zidovudine has been found to be potent in full-blown AIDS cases in terms of reducing significantly, the incidence of opportunistic infection, diminishing the severity of suffering due to the opportunistic infections, renders these conditions more amenable to treatment, and it has been found to increase the duration of survival, from 190 days for an average untreated case diagnosed to have AIDS, to 770 days for an AIDS case treated with zidovudine since diagnosis (51).

Delays progression of asymtomatic HIV positive to symptomatic state, ARC and AIDS, but does not greatly improve duration of survival.

(b) Zidovudine has also been effective in delaying the onset of AIDS Related Complex (ARC) in early stage of HIV infection (ie. asymptomatic HIV positive individuals), and also delays the progression of HIV or ARC to full blown AIDS.(51).

Dosage and Clinical benefits

Effective and safe at daily dosage of 1000 mg, given upto three years. Clinical improvement begins 4-8 weeks after starting treatment.

41. Zidovudine has been found to be safe and of very low toxicity at dosage levels of 1000 mg daily in four divided doses (fourth hourly during working hours) given for upto three years on diagnosis of HIV positivity (perhaps, the period of treatment would be indefinitely extended). Clinical benefits in symptomatic individuals begin to be apparent 4-8 weeks after starting the treatment. The benefits include weight gain, disappearance of fever, mouth ulcers, and other symptoms. Zidovudine is reported to cause dramatic reversal in cases of neurological deficits and dementia caused by HIV -AIDS. (51).

Major side-effect is bone-marrow depression, which is rare and readily reversible.

42. Side-effects are uncommon and include, transient vomiting (in the early weeks of therapy), headache, mylagia and exhaustion. Toxicity includes bone marrow depression causing anemia (an increase of 10% incidence in Zidovudine users over non-treated AIDs patients), neutropenia, and thrompocytopenic purpura. All three are reversible by temporary interruption of 2-4 weeks of zidovudine therapy or by halving the dose till there

is evidence of bone marrow recovery. Clinical indicators of bone marrow depression are, a haemoglobin level of less than 9gm/ 100 ml, or a WBC count of less than 7000 per cu. mm, or platelet count less than 1.5 lakhs per cu.mm (51).

Constraints, problems and potentials of Ziduvodine use in India.

Imported AZT today costs Rs. 200/- per day or Rs. 75,000 per year. Its value is more to reduce suffering and control neurological complications, rather than to improve long-term survival. It would be invaluable in maternal HIV and AIDS - a little delayed orphanhood of her children.

43. The major constraint is the cost. At present costs of the imported drug, it costs about Rs. 200/- per day's treatment. For one year, it would cost Rs.75,000/- and yet long term survival would not really be much higher. Even with initiation of treatment, very early in HIV infection, the difference in outcome compared with nil treatment, is not very rewarding. However it is extremely useful to reduce suffering and improve quality of life. It is invaluable in management of neurological and dementia complications of HIV (AIDS Related Dementia) (51). It would be invaluable in maternal HIV and AIDS where every year of prolonging her life means one critical year less of orphanhood of her children, which in early childhood is invaluable to the child as well as society.

An alternative technology, which brings down the cost, perfected in India .....

44. The Indian Institute of Chemical Technology, Hyderabad has perfected a commercially viable, alternative manufacturing process which can bring down the cost to Rs. 40/- per day. This process has been released to the pharmaceutical company CIPLA, and expected to be available in the market by early 1993.

X-- PRESENT INFRASTRUCTURE AND SYSTEMS FOR CONTROL OF AIDS IN INDIA

The National AIDS Control Programme of India aims to prevent further transmission and reduce morbidity and mortality .....

45 . Keeping in view the public health significance of HIV and AIDS, the Government of India formulated the National AIDS Control Programme in 1987, with the following objectives:

Long-term Objectives

Prevention of HIV transmission

Reduction of morbidity and mortality

Medium term Objectives

- Strengthening of HIV/AIDS surveillance and prevention activities
-Technical support to HIV/AIDS prevention and control
Develop capability for management of HIV infected persons/ management of AIDS patients.
- Enhance the awareness about HIV transmission and AIDS
- Promote safety of blood and blood products
-Organize social support to HIV infected patient/AIDS persons.

.....through surveillance among high-risk groups, ensuring use of screened blood, and health education.

46. Towards the above, the Government of India has initiated actions, largely through the Government health institutions with the following three components.

(i) Surveillance among high risk groups.

(ii) Screening of blood and blood products to ensure blood-safety.

(iii) Information, Education and Communication to minimize transmission by advocating to the people to minimise risky sex behaviours, minimize blood transfusions and use of screened blood.

So far, 114 Centres have been set up in Government, private and voluntary sector for HIV testing by ELISA, and four Centres for Western Blot Test.

47. For sero-surveillance and testing of referred cases, as of December 1991, there were 114 centres in the Government Sector (doing the ELISA test), mostly attached to the Medical Colleges, and to a few District hospitals located in large cities. (Table I). ELISA test is done free of charge at these Centres. Seven centres are available for the confirmatory Western Blot

Test - All India Institute of Medical Sciences and the National Institute of Communicable Diseases in New Delhi; National Institute of Cholera and Enteric Diseases - School of Tropical Medicine, Calcutta, Indian Institute of Haematology, Bombay, National Institute of Virology, Pune, Christian Medical College, Vellore, and Madras Medical College, Madras (7).

13 hospitals in India are entrusted with care of HIV patients in their respective regions.

48.. The Government of India in collaboration with the State Governments, has set up facilities for clinical management of AIDS cases, in 13 Centres in India (Table-II) - (7).

For care of orphans, a grant-in-aid scheme for voluntary organizations to run child-care homes, has been finalized.

49. Recognizing the immense potential problem of destitute children, the Government of India has initiated a Scheme of financial assistance to Voluntary Organizations to set up child care homes. It is a grant-in-aid scheme where voluntary organizations are given assistance to start an Institution for Destitute Children. As per the schematic pattern, 90% of the expenditure (45% Central and 45% State - ie.Department of Social Welfare) is met by the Government and the remaining 10% has to be borne by the voluntary organization.

Admission of Destitute Children in the Children's Home may be made according to the following criteria:

i. Children who do not have either parents or near relatives.

ii. Children of single parent families deprived of adequate family care due to death, desertion, prolonged illness, imprisonment of one of the parents and where the income of the family is less than Rs. 500/- per month.

iii. Children who are found without any home or settled place of abode or any means of subsistence.

Formation of a High Powered National AIDS Control Body (NACB)

National AIDS Control

50.. A high powered National AIDS Control Body under the

Body set up under the leadership of the Central Health Secretary to coordinate all HIV related action programmes.

direct leadership of the Health Secretary, Government of India has been set up, with full financial and administrative powers to take all possible actions to control the spread of AIDS, in collaboration with the State Governments and the non-governmental organizations. The NACB is being formed to expedite the implementation of action plans on all fronts, to remove any financial, procedural or bureaucratic hurdles (27).

XI-- ISSUES AND PROBLEMS FOR HIV CONTROL IN INDIA

51. Keeping in view the rapid transmission of AIDS going on in the country, and particularly, the increased transmission to "low- risk" groups, several issues and problems need to be tackled and require urgent attention, as follows:

How do we organize nation-wide health education to people to avoid risky sex behaviours ?

(a) In view of transmission to and from the high risk groups, i.e. the prostitutes and promiscuous males, there is need for widespread health education on avoiding these behaviours or at the minimum, advocating condom use in risky situations.

How to ensure universal use of only safe blood? 60% of the need for blood today, is met by professional blood donors.

(b) Totally in the country, approximately 20.5 lakh units of blood are collected for transfusion every year(about 3.5 units per bed) (7). This is being handled by 1018 blood banks of which 616 are not licensed (24). The Indian Council of Medical Research had estimated that by end of 1991, about one third of the blood units collected in India, were being HIV tested (ICMR-1990). This still leaves two thirds of the units (approximately 14 lakh units) untested. 60% of the need for blood transfusion in India is being met from commercial sources, and presuming a modest prevalence of 20% HIV positivity among professional blood donors, every year about 2-3 lakh HIV infections are potentially being directly caused by blood transfusion. (Current prevalence among blood donors in major metropolitan cities is 30% - ICMR 1990). Keeping in view the technical and operational problems of promoting HIV testing at small institutions, the issue is, how do we ensure the use of safe blood and blood products?

How do we reach out sex education and HIV education to the 172 million youth, spread in cities, towns and villages, schools and colleges, workplaces, or simply idle?

(c) The total youth population in India aged 15-24 is about 172 millions (20). Of them 19% are attending the schools and colleges (21), about 14% are employed mostly in the unorganized sector or as casual employees, and 67% are unemployed and non- student (23). Keeping in view that this age group is one of the high risk groups, and keeping in view the recent findings on sex- related behaviour of youth in urban India, the

issue is, how do we reach out effectively to the youth? the student youth? the unemployed youth? employed youth? There are problems of social taboos against public discussion of sex-related matters, problems of reaching out to unemployed non-student youth, in terms of logistics.

By 2000, how do we cope with the 10-20 lakh AIDS-related patients, seriously ill, and in need of professional care, when we have today only 5.85 lakh hospital/PHC beds in the Government sector ?

(d) By the year 2000, an estimated 5-10 million population is expected to be HIV positive in India (3,9). It is estimated that at any given point of time, 10% of HIV positive individuals will be suffering from AIDS-related severe illnesses (3). At a conservative estimate, even if 5% of HIV infected persons are suffering from AIDS related illness, at any given point of time, about 10-20 lakhs AIDS-related patients would be requiring skilled medical and nursing care, probably in-patient care. The total bed capacity in the Government sector in India is about 5.85 lakhs (of which about one fourth is at the Primary Health Care level (25). Thus the present total bed capacity would not be anywhere adequate, even if all the hospital beds were reserved exclusively for AIDS cases.

How do we provide the required medical or even basic humane care to the profoundly sick, who may not have the usual family and social supports owing to the stigma attached to the disease?

Threat of a tuberculosis epidemic looms large in the context of a HIV epidemic.

(e) With the advent of AIDS, tuberculosis cases would sharply increase, posing a threat not only to HIV positive persons but also to the others, particularly children and adolescents who form a high risk group for tuberculosis (9).

HIV positivity among women has socially disruptive consequences due to orphaning of young children. 41% of prostitutes have children, and soon, pregnant housewives will be at risk for HIV.

(f) Keeping in view the extremely inadequate facilities in India, to deal with the expected, widespread orphaning of children, the issue of HIV positivity among women should be a top priority. Studies have shown that about 41% of prostitutes have children (42). There are also the young "low-risk", housewives in the child bearing age who may be leaving behind young, physically healthy children by the time the mother succumbs to the disease.

Awareness is low among medical and nursing professionals.....

(g) Very few among the medical and nursing professionals are aware of the magnitude of the problem, the clinical presentation and management of cases, of the points for health education, of the urgent need for sex education and AIDS education, and even, of how to approach the topic with their clients.

HIV postive persons are being stigmatized by medical professionals and public alike, threatening to drive the disease underground, a sure prescription for its silent progress to an explosive epidemic.

(h) While there is low awareness among professionals to suspect, diagnose, treat and counsel for HIV infection, there is widespread horror and stigma attached to HIV positivity by medical professionals and the society at large, and as a result, there is a tendency of persons at risk of HIV, to either hide the HIV status or to avoid HIV testing. Most hospitals which have come in contact with HIV positive patients have avoided admitting them as inpatients or even treating them (26). The situation of HIV positives is so pathetic that no general practitioner or hospital wants to treat them, once they disclose their HIV status. Many HIV positive persons are trying to help each other to find household or over- the-counter remedies for the umpteen sufferings faced on and off (Candidiasis, mouth ulcers, herpes zoster and simplex etc). In large cities they have formed associations to help each other sustain (42). In Bangalore City, a HIV positive person who took ill in a five-star hotel had to be taken from hospital to hospital, through eight major hospitals, before finally being admitted to one (43). In Madras a teenaged girl who became HIV positive following a blood transfusion, was refused surgery in hospital after hospital and then, tore up the HIV status report, saying she would get herself operated at another hospital without informing about HIV status. (44). Driving the disease underground by social and professional stigmatisation is a sure way of promoting a silent HIV-AIDS epidemic. The situation is entirely unpardonable in a civilized society, but continues.

Almost no hospital has clear, articulated hospital policy on admission and care of the HIV infected.

(i) Apart from the stigma attached to HIV, in many large hospitals, even with enlightened senior administrators knowledgeable about HIV, there is no clear articulated hospital policy about out-patient and in-patient care of HIV and AIDS cases. Therefore, when a patient attends the hospital, the junior

doctor/RMO faces a dilemma, whether admission of such patient would be viewed favourably by the management or not, and he feels safer to refuse care.

60% of blood transfusions are totally unnecessary and avoidable. How do we bring about rational blood use ?

(j) While on the one hand, facilities for HIV testing of blood and blood products for transfusion is limited, on the other hand, there is indiscriminate use of blood transfusion even for preventable causes such as anemia, or even without adequate indication. It is estimated by the National Institute of Virology from several studies that, about 60-70% of blood transfusions are totally unnecessary and avoidable (26).

How do we ensure nationwide use of sterile needles and syringes? Using unsterile or used needles is almost the rule in large number of hospitals and clinics.

(k) Every medical professional in the country is aware of several situations - crowded Medical College OPDs, large hospitals, dispensaries, private practitioners' clinics, etc, where syringes and needles are being reused without sterilizing, once the first stock of sterilized needles is used up. In Eastern European Countries and former Republics of the USSR this has been the major route of HIV infection to children.

How do we reach out to these institutions and ensure standards of sterilization?

XII-- RECOMMENDED ACTION PLANS FOR AIDS CONTROL IN INDIA

52.. Keeping in view the known facts about HIV and AIDS in India the following are some of the suggested actions towards containing the epidemic.

A. Information, Education and Communication

i. Awareness, Education and Publicity

Urgently needed - health education to the urban and rural population on how HIV is transmitted, how to avoid HIV, how it is not transmitted, and therefore, to socially accept the HIV positive persons .....

(a) Wide publicity about the problem of AIDS and basic health education about AIDS, to the entire urban and rural communities, through posters and hoardings at prominent places, in front of all Government Hospitals, PHCs, Community Health Centres, through All India Radio, television, news documentaries screened compulsorily prior to all films, through newspapers and magazines, (including film and sports magazines, etc which reach out to the youth) : The information disseminated should cover : (i) how HIV is transmitted ?, (ii) how to avoid HIV infection?, (iii) how HIV is *not* transmitted?, (iv) And therefore, except for few precautions at an intimate level of interaction, the HIV positive person is normal like anyone else and should not be shunned or stigmatised or jeered at. The emphasis should be that a given HIV positive patient could have acquired the infection from any one of several routes.

.....wide publicity reaching out to high risk persons to come forward for HIV testing.

(b) Wide publicity and invitation to persons involved in high risk behaviour to get themselves tested for HIV at the nearest Centre;

(c) HIV and AIDS education to medical and health professionals:

Updating medical and health professionals on HIV and AIDS.

Circulation of facts about AIDS and HIV, prevention, diagnosis, implications for maternal and child health, and clinical management, to all Government doctors, private practitioners and

nurses through printed pamphlets, continuing medical education meetings and programmes, and specifically, facts about HIV transmission in the hospital setting should be emphasized. The professional associations and the District Health and Medical Officers, could be involved as the key catalysts in this direction;

Clear, articulated hospital policy in all hospitals, on admission and care of HIV positive persons.

(d) All hospitals should lay down a clear policy on admission and care of HIV positive individuals and maintain full confidentality of HIV status as far as other patients and the unrelated public are concerned.

Education of hospital staff ..... it is safe to care for HIV and AIDS patients.

(e) All hospital administrators should systematically educate their professional colleagues, nursing staff, paramedical and maintenance staff on the facts about HIV, also emphasizing that it is safe to care for HIV positive and AIDS patients.

Innovative approaches are urgently needed to reach out health education to prostitute groups.

(f) Innovative measures should be undertaken by health authorities, professional associations, medical professionals and para-professionals to reach out health education on HIV and AIDS, to areas of concentration of prostitutes in all cities and towns, as is being done by voluntary organizations such as Indian Health Organization in selected cities such as Bombay, Pune, Calcutta and other major cities;

Voluntary blood donation.

(g) Promotion of voluntary and relative's blood donation;

Minimize blood transfusion, use synthetic substitutes.

(h) Minimize blood transfusions, and use of blood products and use synthetic substitutes wherever possible.

Revamp hospital infection control systems in all hospitals and health centres.

(i) Widespread information campaign to reach all hospital administrators and PHC medical officers, on the issue of revamping infection control procedures and use of only sterile equipment for invasive procedures and at least boiled injections, equipment in their institutions;

(ii) Family Life Education to Youth

Nationwide sex and AIDS

(j) A nation-wide AIDS and family education programme is

education to youth ..... through the teaching community and volunteers such as NSS .....

vital, to reach out to high school youth, college youth, and school dropouts. This could be done through involvement of school and college teachers, senior undergraduate college students suitably trained through the National Service Scheme (NSS), involvement of voluntary organizations working in health, voluntary organizations working with youth, etc (30,31, 32). These are valuable national resources which can be used effectively, provided there can be a leadership to organize the effort.

(iii) Promotion of Condom use

Increase availability and accessibility of latex condoms in urban and rural areas.

(k) Wide publicity on the need for correct use of latex condoms in case of unsafe partners, supplemented by strengthening the condom distribution network, through large number of commercial outlets, including the pharmacies, etc, subsidised sale of condoms through commercial outlets, free distribution on request through all Government hospitals, PHCs and subcentres;

(iv) Care of AIDS orphans

Create a national culture ready to accept the responsibilities of care of AIDS orphans.

(l) *Nation-wide information and awareness campaigns through the mass media to create a national culture which is ready and desiring to adopt the AIDS orphans or atleast to make voluntary institutional arrangements to bring up these children;*

(v) A Socio-medical approach to drug abuse

Evolve practical approaches to injectable drug abuse.

(m) A determined socio-medical approach to drug abuse, particularly injectable drug abuse;

B. Legislation for Compulsory Licensing of Blood Banks

Compulsory licensing of blood banks

(n) Legislation for compulsory licensing of blood banks with stringent quality control measures;

C. HIV Testing

Elisa testing facilities at every District Hospital.

(o) Every District Hospital should be equipped to detect HIV by the ELISA test. This programme should be taken up on a war footing.

Routine HIV testing for all STD cases and surgical cases.

(p) HIV testing to be done for all persons attending STD clinics in the Medical College and District Hospitals; all patients attending the hospital for surgery could also be HIV tested .

HIV testing for ante-natal cases

(q) HIV testing to be done as a routine for all antenatal cases in cities with populations of over a lakh, to begin with, just as VDRL test is routinely done;

Routine HIV testing for TB cases

(r) HIV testing to be done as a routine for all sputum postive TB cases and extrapulmonary TB cases.

Periodic HIV testing of medical and paramedical personnel.

(s) Suggestions have been made by several senior medical professionals, for mandatory HIV testing of all health care professionals periodically, since they may acquire it and can transmit to clients (as in the case of dentists, surgeons, etc. (28).

D. Revitalizing the National Tuberculosis Control Programme

Revamp the National TB Control Programme - Combination of TB and AIDS in India would be deadly.

t) Revitalizing the National Tuberculosis Control Programme to maintain a red alert for TB cases in OPDs, and to ensure prompt and complete treatment of diagnosed cases is a matter of urgent importance.

E. Revitalizing the National Mental Health Programme

Research and psychiatric services for HIV positives may need to be encouraged.

u) Research needs to be encouraged as to the psychiatric disorders, particularly depressive disorders in HIV- positives. Suicide behavioural patterns need to be studied. Facilities and Infra-structure Resources may need to be strengthened.

F. Involvement of Industry

Industry has a major role to play - to educate workers and families about HIV, and help finance AIDS control activities.

(v) Industry could be involved in the following ways :
i) To help finance and organize seminars for local high school teachers, college and university teachers to enable them become effective family life educators of students and youth.
ii) To initiate HIV awareness campaign among their own industrial employees and their families - this approach could potentially reach out to over 25 millions employed in the organized sector, or approximately 125 million population.
iii) To finance posters and hoardings at prominent places, busy traffic junctions,etc.to create public awareness against HIV and AIDS.

G. Setting up Counselling Centres

Set up HIV counselling centres at colleges, universities, hospitals, and health centres.

(w) HIV counselling centres should be set up in large colleges, Universities, urban health and family welfare centres, district hospitals, taluk hospitals, medical college hospitals; and through voluntary organizations.

H. Role of Voluntary Organizations

The effort needed against HIV is immense, ... it is not possible without voluntary effort ..... the voluntary sector has tremendous potential to help meet the challenge, if mobilized and supported.

(x) There is need for support and encouragement to the voluntary sector to organize the immense effort involved in imparting HIV and AIDS education to youth in the schools, colleges and workplaces, and to the high risk groups; for setting up comprehensive HIV counselling centres, where persons diagnosed as HIV positive and their families could receive information, counselling, support and guidance to cope with the problem; for care of terminally ill AIDS patients; and care of children rendered destitute by AIDS deaths. It is not possible for Government agencies alone to cope with the challenge of HIV and AIDS in India.

ISHA hopes that these guidelines would be useful to planners, administrators, medical and paramedical professionals, health professionals, voluntary organizations and all socially concerned individuals, to lend a shoulder to meet the emerging tremendous challenge of the nineties and the twenty-first century, perhaps one of the greatest challenges faced so far by civilized man.

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Table I

List of Centres where HIV Testing Facilities are Available

(AIDS Surveillance Centres and Zonal Testing Centres)

Jammu and Kashmir

1. Department of Immunopathology, Shere-Kashmir Institute of Medical Sciences, Srinagar.

Himachal Pradesh

2. Department of Microbiology, Indira Gandhi Medical College, Shimla.

Chandigarh

3. Department of Immunopathology, Post Graduate Institute of Medical Education and Research (PGI), Chandigarh.

Haryana

4. Department of Microbiology, Medical College, Rohtak.

Rajasthan

5. Department of Microbiology, S M S Medical College, Jaipur.

Delhi

6. Division of Microbiology, National Institute of Communicable Diseases, Delhi.
7. Department of Microbiology, Lady Hardinge Medical College, New Delhi.
8. Department of S.T.D., Safdarjang Hospital, New Delhi
9. IC.P.O, Maulana Azad Medical College, New Delhi.
10. Armed Forces Command Hospital, Delhi Cantt., Delhi.
11. Guru Tej Bahadur Hospital, Shahdara, Delhi.
12. Hindu Rao Hospital, Delhi.
13. Indian Red Cross Society, Delhi..

Uttar Pradesh

14. Department of Microbiology, K G Medical College, Lucknow.
15. Department of Microbiology, Institute of Medical Sciences Varanasi.

16. Central JALMA Institute for Leprosy, Agra.
17. Army Cantt. Hospital, Lucknow.
18. Gorakhpur District Hospital, Gorakhpur
19. G S V Medical College, Kanpur.
20. District Hospital, Allahabad.
21. District Hospital, Meerut.

Gujarat

22. B J Medical College, Ahmedabad
23. Surat Medical College, Surat.
24. Government Medical College, Vadodara

Madhya Pradesh

25. Department of Pathology, Gandhi Medical College, Bhopal.
26. Choithram Hospital and Research Centre, Indore.
27. Regional Medical Research Centre for Tribal Health (RMRC), Jabalpur.
28. Medical College, Gwalior.

Bihar

29. Rajendra Memorial Research Institute, Patna.
30. Nalanda Medical College, Patna
31. District Hospital, Dhanbad
32. Tata Hospital, Jamshedpur
33. Rajendra Medical College, Ranchi.

Assam

34. Department of Microbiology, Guwahati Medical College, Guwahati.

Nagaland

35. Naga Hospital, Kohima
36. District Hospital, Dimapur
37. District Hospital, Muckchong
38. Government Hospital, Kohima

Manipur

39. Department of Microbiology, Regional Medical College, Imphal
40. JN Hospital, Imphal

West Bengal

41. National Institute of Cholera and Enteric Diseases (NICED) Calcutta.
42. Department of Virology, School of Tropical Medicine (STM) Calcutta.
43. Central Blood Bank, Calcutta.
44. Blood Bank, CNMCH, Calcutta.
45. Blood Bank, NRS MCH, Calcutta
46. Blood Bank, RG KAR, MCH, Calcutta.
47. Blood Bank , S.S. K.M., Calcutta

Orissa

48. Department of Microbiology, SCB Medical College, Cuttack.
49. Regional Medical Research Centre, (RMRC), Bhubaneswar.

Goa

50. Department of Microbiology, Goa Medical College, Panaji, Goa

Andhra Pradesh

51. Department of Microbiology, Osmania Medical College, Hyderabad
52. Department of Microbiology, S V Medical College, Tirupati
53. Department of Microbiology, Andhra Medical College Vishakhapatnam
54. Institute of Preventive Medicine, Hyderabad
55. Gandhi Hospital, Hyderabad
56. M J Cancer Hospital, Hyderabad
57. Nizam's Orth. Hospital, Hyderabad
58. Government Headquarters Hospital, Vijayawada.

Karnataka

59. Department of Microbiology, Bangalore Medical College, Fort, Bangalore
60. Department of Microbiology, Kasturba Medical College, Manipal
61. Department of Microbiology, Karnatak Medical College, Hubli.
62. H S I S Hospital, Bangalore
63. K C General Hospital, Bangalore
64. K M Institute of Oncology, Bangalore.

Pondicherry

65. Department of Microbiology, Jawaharlal Institute of Postgraduate Medical Education and Research, (JIPMER), Pondicherry

Kerala

66. Department of Microbiology, Medical College Trivandrum
67. Indian Navalship Hospital, Cochin
68. Medical College Hospital, Calicut
69. Government Hospital, Ernakulum

Tamil Nadu

70. Department of Immunohaematology, Apollo Hospital, Madras
71. Department of Microbiology, Institute of Child Health and Hospital for Children, Madras
72. Institute of Microbiology, Madras Medical College, Madras
73. Tubercuolsis Research Centre, Madras
74. Department of Microbiology, Madurai Medical College, Madurai
75. Centre for Advanced Research in Virology, Christian Medical College, Vellore.
76. G R Hospital, Madras,
77. S G Hospital, Madras
78. Government Hospital, Coimbatore
79. Government Hospital Salem
80. Government Hospital, Trichirapally
81. Madras Medical College, Madras
82. Stanley Medical College, Madras
83. Kilpauk Medical College, Madras
84. King's Institute, Madras.

Maharashtra

85. National Institute of Virology (NIV), Pune.
86. Department of Microbiology, Seth G S Medical College Bombay.
87. Institute of Immunohaematology, 13th floor, KEM Hospital Mutli-storeyed Complex, Bombay
88. Department of Mircobiology, Armed Forces Medical College Pune
89. Department of Mircobiology, Government Medical College Nagpur.
90. Department of Microbiology, J J Hospital, Bombay
91. Sion Hospitla, Bombay
92. B Y L Nair Hospital, Bombay

93. Rajabari Hospital, Ghatkopar, Bombay
94. B J Medical College, Pune
95. Civil Hospital, Kolhapur.
96. Government Medical College, Miraj
97. District Hospital, Chandrapur
98. General Hospital, Solapur
99. Government Hospital, Ulhasnagar
100. K E M Hospital, Parel, Bombay
101. L T M G Hospital, Sion, Bombay
102. Haffkine Institute, Bombay
103. Tata Memorial Hospital, Bombay
104. Red Cross, Bombay
105. Cooper Hospital, Bombay
106. Rajawadi Hospital, Bombay.

Meghalaya

107. Pasteur Institute , Shillong

Punjab

108. Shri G T B Hospital, Amritsar
109. Rajendra Hospital , Patiala
110. Civil Hospital, Ludhiana

Sikkim

111. S T N M Hospital, Gangtok

Tripura

112. G B Hospital, Agartala

Arunachal Pradesh

113. Government Hospital, Itanagar

Mizoram

114. Government Hospital, Aizawl

Table II

LIST OF CENTRES IN INDIA WHERE FACILITIES FOR INPATIENT CARE OF AIDS PATIENTS ARE CURRENTLY AVAILABLE

1. All India Institute of Medical Sciences, New Delhi
2. Madras Medical College, Madras
3. K G Medical College, Lucknow
4. S.M.S Medical College, Jaipur
5. Sher-i-Kashmir Institute of Medical Sciences, Srinagar
6. Trivandrum Medical College, Trivandrum
7. Osmania Medical College, Hyderabad
8. Calcutta Medical College, Calcutta
9. S.C.B Medical College, Cuttack
10. J.J.Hospital, Bombay
11. J.N.Hospital, Imphal
12. Medical College, Goa
13. Bangalore Medical College, Bangalore

Table III

LIST OF REFERRAL CENTRES WHERE WESTERN BLOT TESTING FACILITY IS CURRENTLY AVAILABLE

1. All India Institute of Medical Sciences, New Delhi
2. National Institute of Communicable Diseases, New Delhi
3. National Institute of Cholera and Enteric Diseases, Calcutta, West Bengal
4. Indian Institute of Haematology, Bombay, Maharahstra
5. National Institute of Virology, Pune, Maharahstra
6. Christian Medical College, Vellore, Tamil Nadu
7. Madras Medical College, Madras, Tamil Nadu

ANNOTATED BIBLIOGRAPHY

Here is a list of annotated bibliography of publications and papers presented at the recent Conferences related to HIV and AIDS in India, which professionals and administrators might like to use for further reference. It is not a complete list and we many not have included some important publications.

I.. WHO-Searo, *Regional Plan for Prevention and Control of AIDS in countries of the SE Asia Region,* New Delhi, 1988., 12 pages

The report outlines the suggested plan of action for prevention and control of AIDS in the South East Asian Countries. It emphasises the role of surveillance (including clinical and epidemiological), education and information to all health and medical workers as well as the community, and ensuring a clean blood line (i.e programmes for ensuring use of only HIV-free blood and blood products). It also provides guidelines for action to implement the above three strategies.

II. World Health Organization,*Guidelines for the Nursing Management of AIDS Cases, Geneva, 1989, 48 pages.*

This publication provides guidelines for nursing personnel on patient care (of persons infected with HIV), infection control procedures, self-protection, patient and family counselling, and community health nursing in the context of HIV and AIDS.

III. *Notes on HIV and AIDS - General Information and Presentation Guidelines,* Department of Health, New Zealand, 1988 (Revised & Reprinted 1989), 74 pages.

This publication provides clear information on various aspects of the HIV-AIDS problems internationally, also giving guidelines for effective communication of HIV-AIDS messages by a person making a presentation either to lay persons, other medical/health professionals, health educators, non-professional peer educators, etc.

IV. WHO/GPA/RES/SFI/92.1, *Global Programme on AIDS, Current and Future Dimensions of the HIV-AIDS, Pandemic, A Capsule Summary,* January 1992, WHO, Geneva, 15 pages.

This summary report briefly indicates the present and projected dimensions of the HIV/AIDS problem in all regions of the world, besides providing information on salient epidemiological aspects in each region, and guidelines for appropriate strategies.

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V. Government of India, DGHS, *National AIDS Control Programme in India - Country Scenario - an Update,* Dec. 1991, 62 pages.

This publication summarises the country scenario on HIV and AIDS in India, the salient aspects of the National AIDS Control Programme, present status of implementation and future plans.

VI. World Health Organization, *Guidelines for the Development of a National AIDS Control Programme,* WHO AIDS Series-I, Geneva 1988,28 pages.

This publication presents the significant considerations for development of National AIDS Control Prog rammes, objectives, strategies, actions to be implemented at various levels, guidelines for evaluation and further improvement of the programme.

VII. Indian Council of Medical Research. *ICMR Bulletin 1990*

This publication by ICMR presents data relating to maternal HIV and its serious implications for maternal and child health. Among several other recommendations, the report emphasises that contraception and pregnancy termination among HIV postive mothers or couples with one partner HIV positive , is a necessity.

VIII. WHO/MCH/GPA/90.2-AIDS Prevention - *Guidelines for MCH/FP Programme Managers - AIDS and MCH,* Geneva, May, 1990, 71 pages.

This publiclation presents relevant information relating to maternal and child HIV, and therefore the guidelines for MCH and FP Programme managers in the context of AIDS.

IX. World Health Organization : *Young People's Health - A Challenge for Society,* WHO Technical Report Series 731, Geneva 1986.

This publication presents facts about the socio-physical-psychological-sexual maturation process of adolescents which profoundly influences the average teenagers' behaviour including sex behaviour. The publication also provides guidelines for parents, health professionals, teachers and educators for promoting healthy self-acceptance and self-development of youth, towards prevention of unhealthy life styles, habits and behaviours among youth. Among other aspects, it emphasises the high prevalence of unsafe sex behaviours among youth.

X. League of the Red Cross and Red Crescent Societies: *Action for Youth - AIDS Training Manual,* Geneva 1990, 184 pages.

This publication is a comphrehensive guide for HIV educators striving to create AIDS

awareness for prevention of HIV among youth. It presents simple facts about HIV and effective communication, along with exercises to improve communication with youth.

XI. Global Programme on AIDS-Taking up the challenge in the 90s, WHO Cophengan, 1991, 79 pages.

This publication summarises the current scenario and status of AIDS Control Programmes in the European region, as well as the projected scenario, problems and issues for AIDS control.

XII. WHO AIDS Series - 10 - *School Health Education to prevent AIDS & STD, WHO-UNESCO,* Geneva, 1992, 32 pages.

This publication presents guidelines for an education programme through school and college teachers, to provide sex education and HIV education to high school youth. It provides guidelines for thought and action on goals of such a programme, key considerations for reaching the goals (including youth factors, teacher factors, community factors, cultural taboos etc), content of curriculum, selection of the right type of teachers, and implementing the education in appropriate formal classroom settings and informal setting.

XIII. United States Agency for International Development, *HIV Infection and AIDS, A Report to the Congress on the USAID Program for Prevention and Control,* Washington DC May 1991, 49 pages.

This publication summarises recent advances in knowledge about HIV transmission and control, and the various components of the USAID's response to the pandemic of AIDS. Among other findings, the report indicates recent estimates showing the risk of HIV transmission increases as much as 20-50 times when other STDs are present, especially syphylis and chancroid.

XIV Center for Disease Control, *Recommendations for Prevention of HIV Transmission in Health Care Settings,* Supplement to MMWR, Vol 36, No.25, August 21, 1987, Epidemiology Programme Office, CDC, Atlanta, Georgia

This Report provides information on strategies for prevention of HIV transmission in hospital and health care settings. Besides making recommendations specifically for medical, nursing and laboratory personnel, dentists, autopsy handling , dialysis, housekeeping, decontamination and handling of infective wastes, it also reports on the limitations of serological testing for HIV infection. It also reports on one of the largest epidemiological studies of health care workers infected with HIV. Of a total of 32,395 adults with AIDS detected in USA by July 1987, 1,875 (5.8%) were employed in a health care setting. (In the US, 5.6% of the labour force is employed in health or clinical care settings, showing that there was no undue incidence among this group.) Among 1,875, 95% straightaway reported to be engaged in high risk behaviour. Of the 93 remaining, on closer investigation 66% were reclassified because risk factors were identified or

the patient did not meet the surveillance case definition of AIDS. Of the 33 who remained, apparently without behavioural risk factors, 15 reported parenteral and/or other non-needlestick exposure to blood or body finds from patients in the ten years preceding their diagnosis of AIDS. (HIV status of the offending blood or body fluid was indeterminate). Of the balance, one was a therapist, and four who did not come in contact with patients. This leaves 14 persons, who denied any high risk behaviour, who might have got infected from contact of intact or broken skin with blood and body fluids.

Findings of another prospective sero-surveillance study is reported, among health care workers who had accidental needle stick injury/other parenteral exposure/mucous membrane exposure/ open wound contamination by blood or body fluid of known HIV positive case. Of 883 health care workers followed up none if 74 persons who had a mucuous membrane exposure sero-converted on prolonged follow up. Three (0.9%) of 351 with needlestick exposure sero-converted. Of 396 persons who had only one convalescent blood sample taken (>90 days after exposure), only one (who also engaged in high risk behaviour) sero converted. Another prospective study of 332 health workers with a total of 453 needle stick injuries or mucuous membrane exposures found that none sero-converted. Similarly in UK none of 150 health workers with such history sero-converted; in California another study of 129 such individuals also found nil sero conversions. So far in the USA, apart from those enrolled in these studies, eight persons without high risk behaviour but provided care to HIV infected cases have become HIV positive - three of them had needle stick injury, two had extensive contact with blood and body fluids with injured or inflamed skin surface and other three were very likely to have had injury or lesions on the skin which came in direct contact with blood.

Among dentists and dental hygienists, of 1231 screened, one (0.1%) was HIV positive, who denied high risk behaviour but had history of repeated needle stick injury and trauma to hands without gloves while handling cases.

XV World Health Organization *WHO-AIDS* Series-2 - *Guidelines on Sterilization and High level Disinfection Methods Effective against Human Immunodeficiency Virus (HIV)*, Geneva 1988

This note provides clear guidelines for sterilization and viricidal procedures with the most commonly available chemical disinfectants and equipment.

XVI Center for Disease Control: Unpublished Reports - (a) H Tamashiro: Programme on Alternative Confirmatory Strategies for Diagnosis of HIV Infections, (b) Recommendations for Prevention of HIV Transmission to Laboratorians, (c) Health

Care Workers - Information on Safety for Laboratory Personnel, Produced by Caribbean Epidemiology Centre.

This paper a) presents the problems of trying to get absolutely error-free HIV test results and presents some alternative strategies for accurate HIV test results, being used in the various countries.

b) provides recommendations for prevention of HIV transmission in health care settings.

c) provides clear guidelines for safety of laboratories. Among several other guidelines, it emphasises the importance of practising the well known lab safety precautions with all patients and not only with known HIV positives. Besides, one of the most forgotten but best precaution is re-emphasized - simple washing of hands with soap and water in case of accidental contact with blood and body fluids and before leaving the lab.

XVII AIDSTECH *Strategies for Behaviour Change,* Task Force Proceedings, April 3-5, 1991. Published by AIDSTECH, Family Health International PO Box 13950, Research Triangle Park NC 27709, USA., 20 pages.

This publication summarises the major critical considerations for mounting a behaviour modification strategy. It summarises results of large number of studies and pilot efforts, which are highly suggestive of the successful vis-a-vis unsuccessful education strategies. It brings out the important psychological and cultural aspects of condom use, prevailing beliefs and nuances about it, social marketing strategies, innovative programmes to change the social image of the condom user, an educational content to emphasise the cultural and psychological aspects of sex apart from the physical aspect (e.g. the relationship between sex and love, etc.), delinking the HIV-preventive aspect of condom use from its family planning aspects, improving quality of condoms, lubrication, publicity about the positive effects of condoms on sex, and promotion of inter-partner communication about condoms. It also emphasizes the need to move beyond information to motivation of the people for action, and the need to move beyond an obsession with advocating only single sex partner to promotion of condom use also. It also emphasises the need for counselling and experiential approach than the verbal persuasion approach. Besides several important considerations for designing effective behavioural change programmes are outlined.

XVIII Product Monograph of Burroughs Wellcome on Retro Vir (Zidovudine), Wellcome Foundation, 1991.

This product monograph on azidothymidine summarizes the findings of the major, statistically significant large -scale trials done with AZT on asymptomatic, clinically symptomatic and full-blown AIDS cases, besides on neuro-psychiatric cases with HIV.

XIX Grose, Bob, 1990, NGOs and AIDS: The WHO Perspective, *Paper Presented at the International Conference on AIDS in Asia and the Pacific,* Canberra, Aug 5-8, 1990.

This paper emphasises the immense potential of voluntary organizations to help our society meet the challenge of HIV and AIDS in a civilized manner. It also raises certain issues relating to NGO-Government collaboration.

XX. Papers Presented at the Second International Congress on AIDS in Asia and the Pacific, November 8-12, 1992, at Hotel Ashok, New Delhi (Selected Papers).

1. Chipkar S S et.al : *Seroprevalence of HIV infection among industrial workers in Bombay*, K E M Hospital, Bombay.

Findings of HIV seropostivity and sexual promiscuity levels among 980 industrial workers of Bombay, across a cross section of industry are reported. Seroprevalence of HIV was 4/1000, highest in the age group of 20-40 i.e 1%. Promiscuity rate was 24% among 20-30 aged single, married males (i.e. seperated from family by urban migration), and 32% among the 31-40 aged.

2. Das P K, et.al : *Prevalence of HIV infection in patients with persistent Pulmonary Tuberculosis in Calcutta*, Calcutta University Calcutta

HIV prevalence in persistant and multiple drug resistant pulmonary tuberculosis patients in Calcutta is reported. HIV positivity was found in one of 80 cases in Calcutta as compared with 5.1% prevalence in a similar group in Bombay area.

3. Mahajan R , Singal R and Gilada I S : *Cost Effective HIV screening strategies for developing countries*, Indian Health Organization, Bombay

Innovative strategies are described for reducing costs of HIV testing in mass screening situations in developing countries such as, blood banks, production of pooled plasma products. It also discusses the optimum cost effective strategies for HIV testing for reliable test results.

4. Monzon, Ofelia T: *Cost Effective Approaches to HIV Testing,* Research Institute for Tropical Medicine, Metro, Manila, Philippines

This paper discusses the approximate comparative costs involved with HIV testing in mass screening situations when different strategies are employed. The study found a 70-78% cost reduction when pooled sera were tested, and only positive pools further investigated to identify offending blood sample.

5. Sato P A, et.al: *HIV Testing Strategies not requiring the Western Blot*, World Health Organization, Geneva, Switzerland

Strategies are outlined to use Elisa reactive tests only for cost-effective reliable results, without the use of Western Blot which is very expensive. For identification of HIV positive persons, a) Among a population group with an estimated HIV prevalence of less than 10%, three serial Elisa tests, second and third on reactive sera on the first test, b) Among a population group with more than 10% sero-prevalence, two serial Elisa tests c) For diagnosis of HIV-related disease, two serial Elisa tests d) For epidemiological surveillance, two serial tests in case of sero-prevalence below 10% and one test in case of prevalence above 10%, e) For transfusion safety one test alone (and that also by pooling strategies), is adequate for reliable results, yet with 50% cost reduction.

6. Tolat S N, et.al: *HIV Positivity and Leprosy: Clinico-Serological Correlation*, Sassoon General Hospital & B J Medical College, Pune

Keeping in view the known immune suppression in leprosy, the paper reports on the results of HIV Elisa testing of 558 cases of leprosy, also correlating HIV positivity with clinical manifestations of leprosy in the patients.

7. Verenkar M : *HIV, Hepatitis B & Syphilis Among Sex Workers of Goa*, Goa Medical College, Panaji

Among a sample of 369 commercial sex workers of Goa, findings of a study of HIV seropositivity of 16.8%, VDRL positivity 41.7% and Hbs Ag of 20.3%, are reported.

8. Seema S: *Rational Use of Blood to reduce the risk of HIV Infection*, University College of Medical Sciences and GTBH, New Delhi

Relevant findings of a clinical audit conducted to assess the efficiency of use of blood, are reported, together with recommendations for more rational blood use. The study, in particular, found that in majority of cases, blood transfusion does not serve the objective, and only has a psychologically palliative role.

9. Divekar A D & Banerjee K : *Awareness on HIV Amongst Rural Medical Officers*, National Institute of Virology, Pune

This study found that only 31% of 109 rural Medical Officers were aware of contracting HIV as a professional hazard, 14% considered faeces and hair as infective material, 10-27% felt hugging, masturbation or sneezing by infected individual could transmit AIDS. 19-26% attributed tuberculosis and poverty as the causative factors of HIV infection. Overall, a low awareness about facts on HIV was evident.

10. Chandra M, Ghorpade A : *Association of HIV Infection with Genital Ulcer Diseases,* Institute of Pathology, New Delhi

The findings of a study of 2086 patients with sexually transmitted disease, are reported. The study showed a high association between genital ulcer disease and susceptibility to acquire HIV.

11. Gopalakrishnan P B, et.al : *HIV -the 3rd Generation STD Problem,* Institute of Venereology, Madras

This paper reports on the clinico-epidemiological profile of STD in association with HIV positivity.

12. Jacob M, et.al: *STDs as Risk Factors in the Transmission of HIV*, Christian Medical College and Hospital, Vellore

This study covering 121 HIV positive individuals and 242 age-sex matched controls, shows high association of HIV positivity with past history of Genital Ulcer Disease and particularly, past GUD.

13. Chacko S, et.al: *Clinical Profile of AIDS in India - A Review of 61 Cases*, Christian Medical College Hospital, Vellore

Clinical profile and course of the disease in a group of 62 AIDS patients is reported. Clinical profile in Indian patients is similar to that reported in Western Countries. Notably 32 of 61 (52%) had tuberculosis predominating. The mean duration from diagnosis of AIDS to death was four and a half months.

14. Gursahani R , et. al : *Opportunistic C N S Infections in Indian AIDS Patients,* B Y L Nair Hospital, Bombay

A detailed clinico-pathological study of the nature of CNS infections in a group of 18 HIV/AIDS patients is reported.

15. Maniar, et.al : *Clinical Profile of HIV/AIDS - Bombay, India,* G T Hospital, and Grant Medical College, Bombay

The clinical and epidemiological profile and course of HIV/AIDS in a group of 176 HIV/AIDS patients treated at GT Hospital in Bombay, is presented. This study of a large sample also shows that the course of the disease in India is similar to that reported in Western countries.

16. Mirdha B R, Banerjee U R , & Malaviya A N : *HIV Induced Parasitic Infection*, All India Institute of Medical Sciences, New Delhi.

The role of uncommon and severe intestinal and extra-intestinal parasitic infections in HIV-in

fected persons in India, is reported.

17. Pande I, et.al: *Cryptosporidial Diarrhoea in a Patient of AIDS,* All India Institute of Medical Sciences, New Delhi

The clinical manifestations of cryptosporidial diarrhoea together with severe oral candidiasis is described.

18. Saple D, Miskeen A : *Cryptococcal Meningitis in AIDS, Bombay, India,* G T Hospital Grant Medical College, Bombay

The paper describes the clinical course of cryptococcal meningitis in seven cases of AIDS.

19. Shrivastava A K : *Psychiatry and AIDS - The New Challenge,* Silver-Mind Hospital and Psychiatric Research Centre, Thane, Maharashtra

Keeping in view the widespread psychiatric and neurological manifestations of HIV/AIDS, the role of psychiatrists and other mental health professionals in the context of HIV in India is discussed.

20. Singh S, & Seth P: *Toxoplasmosis in Indian AIDS Patients,* All India Institute of Medical Sciences, New Delhi

In this study, the authors attempted to study the incidence of toxoplasmosis in Indian HIV and AIDS patients. They concluded that toxoplasmosis is uncommon among Indian HIV cases.

21. Choudhry V P, et.al: *Thrombocytopenic Purpura in Children with AIDS,* All India Institute of Medical Sciences, New Delhi

The paper draws attention to a common but less studied manifestation of HIV-thrombocytopenic purpura with haemorrhage .

22. Borges N E, et.al: *Clinical Profile of ELISA Positive HIV Patients - A Study of Fifty Cases,* Topiwala National Medical College, Bombay.

Keeping in view WHO estimate that about 10% of HIV positives may have symptoms, this study reports on a group of fifty consecutive HIV positive Indian patients detected at the Topiwala Medical College. This study showed that at any given point of time, more than 40% were symptomatic with one or a combination of symptoms.

23. Dahastwar D R & Shroff H J : *AIDS Associated Kaposi's Sarcoma in an Indian Female*, Sir J J Group of Hospitals, Bombay

The paper draws attention to the clinical manifestations and course Kaposi's sarcoma in an Indian AIDS patient.

24. Deshpande A K & Joshi S R : *Clinical Profile of HIV Infection in Bombay*, Grant Medical College and Sir J J Group of Hospitals, Bombay

A study of HIV prevalence and clinical profile of HIV-I positives among high risk group in-patients of JJ Hospital, Bombay, was conducted. Notably, patients with tuberculosis and high risk behaviour had very high prevalence of HIV positivity. Accordingly, it is recommended that this combination in a patient should lead one to suspect HIV.

25. Gupte S S, Joshi S R & Lanjewar D N : *Extra -Pulmonary Tuberculosis (TB) - An AIDS Defining Criteria in India?*, Grant Medical College, Bombay.

This paper summarises the findings of a study of 153 cases of tuberculosis and compares it with findings of several other studies in other centres. The findings strongly suggest that extra-pulmonary tuberculosis should be considered an AIDS defining criterion in India.

26. Joshi S R, Gupte SS & Lanjewar DN: *Neurotuberculosis and HIV - I Infection in India*, Grant Medical College and Sir JJ Group of Hospitals, Bombay

The clinical and post-mortem profiles of neurotuberculosis in a group of 157 consecutive HIV postive/AIDS patients admitted at JJ Hospital, Bombay, are reported. 17.1% of them had neuro-tuberculosis. Hence, the authors emphasize the need for HIV screening in all cases of meningitis.

27. Matulessy P F, Rachat A & Myntti C : *The Role of Nutrition on HIV/AIDS*, Pela Mampang - Kembayoran Baru, Jakarata, Indonesia

The effect of dietary micronutrients - iron,zinc, selenium and Vitamin A, on the progress of HIV infection to AIDS, in a group of asymptomatic HIV positive persons, was studied. The authors concluded that specific diet with high levels of the above nutrients can delay the onset of AIDS.

28. Jagannath S: *HIV in Ancient India*, All India Institute of Medical Sciences, New Delhi

Abstracts of ancient Ayurvedic literature describing clinical syndromes similar to the terminal stage of AIDS, are reported.

29. Singh V, et.al : *A Clinical Profile of HIV Carriers: Homeopathic Management-3 years study,* Central Council of Research In Homeopathy, Regional Research Institute(H),CMPH, Bombay

Homeopathy is now considered to have the potential to help HIV/AIDS patients. The response of 156 HIV - positive individuals with various clinical symptoms ranging from diarrhoea and fever, to herpes zoster, pleural effusion and parotitis, was studied. The report shows that almost all patients recovered from symptoms within a variable period of time and meanwhile general health status, body weight and other biological functions were well controlled. The authors conclude that homeopathic medicine has a significant role to play in management of HIV positive individuals.

30. Bhushan S B: *Tuberculosis: An Important Infection of HIV,* New Delhi Tuberculosis Centre, New Delhi

This paper attempts to project the scenario in respect of HIV and tuberculosis in India by the year 2000.

31. Upadhyay S N : *Anti-HIV Effects of Neem (Azadirachta Indica),* National Institute of Immunology, New Delhi

Neem has been considered to have anti-viral properties for a long time. In this report, findings of in-vitro effect of extracts prepared from neem leaves and seeds, on HIV-infected human peripheral WBCs are described. Culturing with neem extract reduced significantly the secretion of P -24 viral protein into the supernatant, thus indicating a potent action in inhibiting HIV infectivity. Immuno- stimulatory properties were also found. Neem leaves were found to be more potent than seeds.

32. Ralte J S, et.al: *Drug Addiction and HIV infection in Mizoram,* Civil Hospital, Aizawl , Mizoram

A community based survey HIV and intravenous drug use was conducted in Aizawl, the capital of Mizoram. 2% of the general urban population were intravenous drug users (IDUs) and among them ,10% were HIV positive. Majority of them , 73% , did not use any cleaning procedure before sharing needles; none had heard of bleach as a cleaning agent; average number of partners sharing one needle was four; needle sharing was the rule even though 94% knew of the risk of AIDS due to needle sharing.

33. Sarkar S K , et.al: *IDU Related HIV Infections in North Eastern States of India,* ICMR Unit for Research on AIDS for the NE States of India, Calcutta.

This paper reports on prevalence of intravenous drug use in the urban areas of the North-Eastern States (1-2% of urban population), prevalence of HIV (10-50%), estimates of HIV positive

individuals (10,000 positive among 25,000 IDUs), and on practice of condom use (1-3%).

34. Saxena S, & Chavan, B S : *Injection Practices and HIV Status of Parenteral Drug Department Patients in India,* All India Institute of Medical Sciences, New Delhi.

Needle sharing practices and HIV status of intravenous drug users in Delhi were studied; the author reported very little needle sharing among drug addicts in Delhi; majority cleaned the needles before use by washing.

35. Surchand S , et.al: *Relationship of National Highway with intravenous drug abuse of heroin and HIV Infection in Manipur,* Government of Manipur, Medical Directorate, Imphal, Manipur

A clear relationship has been established between proximity of the villages to National Highway 34 (running from the Myanmar border to Imphal in Manipur), and prevalence of IVDU among the villagers. Villages close to the National Highway had a prevalence of about 1.3% of intravenous drug use, and those farthest away had a prevalence of 0.2%. Prevalence of HIV infection among IDUs in all areas was 50%.

36. Munnilal M, & Gilada. I S : *HIV Prevention Efforts Amongst IVDUs in Bombay,* Indian Health Organization, Bombay.

This paper discusses innovative strategies for successful HIV prevention efforts among IVDUs in Bombay, by a voluntary organization. The methods included, establishing initial contact with IVDUs, gaining their trust, health education, needle exchange programme, bleach distribution and peer education.

37. Belsey E M, et.al: *Model of "Window" for HIV-Infected Blood,* World Health Organization, Geneva, Switzerland.

A model of HIV sero-reactivity vis-a-vis the latent period of infectiousness without sero-reactivity is considered in this paper. Based on the model, it is calculated that with an annual incidence of HIV infection among blood donors of 1% and each blood donor making a single blood donation per year, 9-15 blood units per 10,000 would be in the "window" period, ie. HIV sero- negative but infectious to the recipient.

38. Ngangom B S, Singh Y I: *Sero-epidemiology of HIV Infection in Manipur,* Regional Medical College, Imphal, Manipur

An extensive sero-epidemiological study to establish the actiology and epidemiology of HIV was conducted among high risk persons in Manipur. Of 9797 HRG persons screened, 1554 were positive. Of the positives, 1425 were IDUs (98% males), 58 were blood donors, 43 from heterosexually promiscuous persons, 5 from antenatal mothers and 23 from other risk groups

39. Chakma T, et.al: *HIV Infection in Jabalpur*, Regional Medical Research Centre, Indian Council of Medical Research, Jabalpur

The epidemiological profile of HIV positive persons detected at Jabalpur since 1986, is reported. Of the 26 Indians detected positive, one was an IDU and remaining were heterosexually promiscuous.

40. Chari S A, & John J K : *Cognitive Dysfunction in Asymptomatic HIV+VE Individuals*, Christian Medical College, Vellore.

This paper presents findings of cognitive and psychomotor deficits in asymptomatic HIV positive individuals.

41. Dalal P J, et.al: *Prevalence of HIV-1 Infection in Patients with Active Pulmonary Tuberculosis,* Grant Medical College & Sir J J Group of Hospitals, Bombay

A HIV sero prevalence study of 2564 patients of active pulmonary tuberculosis of JJ Hospital, was conducted. 5.4% were positive. Based on this finding, the authors recommend HIV screening for all active pulmonary tuberculosis cases in India.

42. Gharpure H M, Chandekar NG & Sengupta S R: *Sero-surveillance of HIV Infection in Migrant Workers: Socioeconomic Relationship,* Indian Council of Medical Research, Haffkine Institute, Bombay

This paper discusses the differences and reasons for differences between the findings of two sero-surveillance studies of HIV infection in migrant workers in Bombay. One study reported a prevalence of 4.5%, another 0.5% . The focus is on socio-economic and cultural factors in the two groups.

43. Yazdim I, & Gilada I S: *Fast Rising Rural Spread of HIV-I in Tribal Belt of South Gujarat,* Indian Health Organization, Valsad Branch, Valsad, Gujarat

The tribal belt of South Gujarat, which has conventionally high prevelance of STD, has become a major centre for HIV transmission, as reported in this study.

44. Jacob J T, et.al: *The Epidemiology of AIDS in the Vellore Region,* Christian Medical College, Vellore.

The epidemiological profile and rural-urban distribution of 61 AIDS cases treated at Christian Medical College, Vellore, is presented. The authors concluded that, (a) cases reporting at hospitals form a very small fraction of cases in the community and, (b) HIV transmission has commenced in rural areas also.

45. Jose L, & Legori M: *HIV Infection in Kerala,* Medical College, AIDS Surveillance Centre , Trivandrum, Kerala

An epidemological profile of HIV positive individuals in Kerala is presented. History suggested that two thirds of the infections were acquired from Bombay.

46. Joshi S H, Chipkar S S & Patil R S *: HIV 1 and 2 Infection in Bombay*, Institute of Immuno-Haematology, KEM Hospital , Bombay

Evidence of spread of HIV - 1 and 2 infection in Bombay, particularly the recent rapid escalation of HIV - 2, is documented.

47. Jayapaul K, et.al: *HIV Sero-Study of 67415 persons in Tamil Nadu : Six years Expereince of an STD Physician*, Madras Medical College, Institute of Venereology, Madras

This paper presents the clinical and epidemiological profile of 931 HIV positive cases detected among a total 67,415 persons screened for HIV in Madras. Significantly, 70% of HIV positives had Genital Ulcer Disease, besides several other findings.

48. Kulkarni M G, et.al: *Sero Prevalence of HIV 1 Infection in Bombay*, T N Medical College, Bombay

Epidemiological profile of HIV positives detected at Topiwala Medical College Hospital, Bombay, is reported. The highest sero prevalence was among STD out-patients (20-30%). Indoor patients and others attending the other out-patient clinics had a sero prevelance of 11-19%. This shows a very high HIV transmission rate in the population of Bombay.

49. Laponite N, et.al: *How Reversible is Immuno suppression of Pregnancy in HIV Positive Women*, Centre Maternal ET Infantile Sur Le Sida, Hospital Saonte-Justine, Montreal, Canada

Pregnancy appears to be a very undesirable event for HIV positive women . This paper presents evidence of excessive immune suppression among asymptomatic pregnant women sero-positive for HIV, suggesting that pregnancy accelerates immuno suppression in asymptomatic HIV positive women, and promotes rapid onset of AIDS.

50. Makroo, et.al: *Distribution & Trends of HIV Infection in Blood Donors of Metropolitan Cities in India*, Ministry of Health and Family Welfare, Government of India, National AIDS Control Organization, New Delhi.

A comparative picture and time trends of HIV infection among blood donors of the four metropolitan cities of Delhi, Bombay, Madras and Calcutta from 1989 to91, is documented.

51.Parekh V, et.al : *Prevalence Rate of HIV Seropositivity Amongst Commerical Blood Donors of Ahmedabad City,* SIRMC, Ellisbridge, Ahmedabad

A KAP study of 185 commercial blood donors registered in Ahmedabad was conducted. Salient findings were as follows: majority of CBDS were unmarried, illiterate pavement dwellers, 20-40 years of age; 50% were donating blood for more than 10 years; each donated 9-12 units of blood per month; quality of blood in terms of haemoglobin content was very poor, and 40% visited prostitutes.

52. Rubsamen W H, et.al: *Two Indian States, Maharashtra and Goa show spread of HIV-1 and 2 similar to some African countries*, Georg-Speyer-Hans Paul-Ehrlich-Strasse, Frankfurt, Germany.

This recent sero surveillance study of HIV among high risk population of Bombay (prostitutes) and of Goa, found a prevalence of 38% HIV positivity, indicative of exposive spread of HIV comparable to some of the sub-Saharan African countries.

53. Sankaran J R & Jayakar P S A: *Profile of Earliest Cases of AIDS in Madras*, Government of India, M.O.H., Madras

The clinical course and causes of death in 21 cases of AIDS, the earliest ones diagnosed and followed up at General Hospital, Madras, are presented.

54. Sarkar K, et.al: *HIV Infection in Andaman & Nicobar Islands, India, the possibility of a New Route of Entry,* ICMR Unit for Research on AIDS for NE States of India, Calcutta.

This paper presents the preliminary findings of a socio-epidemiological study- cum sero-surveillance in the Andaman and Nicobar islands, where illegal Burmese entrants into Indian waters are frequently detained for long periods and have sexual contact with the locals. Also foreign sailors entertained by local women, could potentially turn the A & N islands into a major HIV transmission zone in India.

55. Saxena D M & Kosambiya J K : *HIV Sero Positivity in Sex Workers of Gujarat,* South Gujarat University, Government Medical College, Surat, Gujarat

The authors report a HIV sero prevalence of 18.5% among sex workers of Surat which was highly correlated with low duration of occupation (<5 years) and with Hbs Ag positivity. No influence could be detected of factors such as education, marital status, past history of STD and contacts with foreigners.

56. Solomon S, &Ganapathy M : *HIV-1and 2 among HRGs in Madras,* Madras Medical College, Madras

A study of HIV -2 incidence over a period of eight months, shows an exponential rise of HIV -2 infection among High Risk Groups in Madras, ever since the first case of HIV -2 was detected in Madras in January 1992 .

57. Tripathy S, et.al: *Prevalence of HIV in STD Patients in Pune,* National Institute of Virology, Pune, Maharashtra.

Findings of 17.4% seropositivity among patients attending the STD clinics during April-June 1992 is compared with the rate of 8.8% in 1991. This shows a rapid increase in incidence. The paper also reports on the mix of HIV-1 and HIV-2 infections during these periods.

58. Dasari R D, Susan R & Gilada I S: P*roblems in Inducting a Very Busy Brothel Area in Peer Group Education*, Indian Health Organization, Pune, Maharashtra

The experiences of a voluntary organization in implementing a peer group education programme for safe sex practices, among sex-workers of a busy brothel area in Pune, are reported. The authors conclude that the cooperation of the "Gharwalis", (brothel owners who are mostly elderly women), is critical for success of a peer education programme. Typically their cooperation is elicited by convincing them of the business gains of permitting their girls to practise safe sex.

59. Kusum S, & Sharma R: I*ntervention Study in Delhi's Brothels,* Maulana Azad Medical College, New Delhi

This paper outlines the strategy and initial experiences of initiating an intervention study in Delhi"s brothels.

60. Singh M A: *Drug Abuse & AIDS - A challenge to youths*, Regional Medical College, Keisamthong Elangbam Leikai, Imphal, Manipur

Findings of a study of the psycho-social background of 330 youth participants of the Manipur marathon, most of whom were IVDUs formerly, are presented. Mental anxiety about family and corruption in the society predominated, and 94.5% opined that youth involvement to achieve a healthier society in Manipur would be an effective antidote to the present problem of drug abuse and AIDS in Manipur.

61. Bakthavatchalama: *The Dormant Volcano - AIDS in Tamilnadu,* Madras Christian Council of Social Service, Madras

Findings of KAP study of public awareness of sex - sexuality- condom use, among an urban slum community of Madras, are presented. The study shows that low awareness on these issues is fuelling a silent epidemic of HIV, rapidly progressing in Tamil Nadu State.

62. Kumaresan G & Sheriff: *HIV Intervention on the Highways,* South India AIDS Action Programme (SIAAP), Madras

Truck drivers on inter-State highways have been found to be a very high risk group for STD and HIV. This paper presents the experiences and highly successful outcomes of an organized intervention to prevent HIV and STDs among inter-State truck drivers and cleaners. Counselling STD treatment, provision of free condoms and health education materials at the checkpost in the National Highway resulted in widespread cooperation by the truck drivers, and a notable change towards safe sex practices. The paper makes recommendations for establishing HIV counselling, free condom supply and service centres at highway checkposts.

63. Gilada I S: *HIV Prevention through Condoms or Consultants,* Indian Health Organization, Byculla, Bombay, Maharashtra

This paper presents the cost-effectiveness of a strat egy of universal availability of subsidized Deluxe-Nirodh condoms adequate for Bombay's red light area which is equivalent to the remunerations and expenses of two international consultants for one month (This would require approximately 120 lakh condoms per month, costing Rs. 16 lakhs). The paper concludes that India has to prioritise the intervention strategies and wisely choose between free condom supply and consultants.

64. Chakraborthy A K : *Survey of STD/HIV among a group of commercial sex workers of Calcutta,* All India Institute of Hygiene and Public Health, Calcutta.

A community based survey of STD/HIV among 450 commercial sex workers of Calcutta showed 58.54% prevalence of VDRL positivity, and 59.26% having vaginal discharge with or without endocervical pus. HIV prevalence was low, but these predisposing factors predictive of a rapid spread in the near future.

65. Sharma A K, et.al: *K A B P Study on AIDS in Rural Female Students,* Lady Hardinge Medical College, New Delhi

Knowledge, attitudes and practices related to sex and HIV among youth, is one of the most important factors in HIV transmission. This paper presents findings of KABP study (Knowledge, attitutde, behaviour and practice) relating to HIV, among female students of rural Delhi's high schools. 84.3% of girls were aware about AIDS. Other significant findings suggest that imaginative TV programmes as well as AIDS education and sex education in schools by teachers, could promote more favourable practices and attitudes in respect of HIV and AIDS in this age group.

66. Chanda S K, Damato J & Hazra: *AIDS Control and Eradication Program for India,* INDOTECH, Inc., Calcutta.

This paper reviews the experiences of AIDS Control Programmes involving 20 nations and

over five hundred million persons. The experiences clearly indicate the three major pillars based on which an effective AIDS control programme can be implemented: - a) highly accurate and timely diagnostic testing, b) community and kinship-based education and support c) cost-effective traditional and non-traditional health care services.

67. Meshram D : *The All India AIDS Prevention and Control Programme of Christian Medical Association of India,* Christian Medical Association of India, New Delhi

The institutions of Christian Medical Association of India are providing significant health care services, serving particularly the unreached populations in remote and tribal areas. This paper presents, the major approaches being attempted by the CMAI through its institutions and health care workers, in response to the challenge of HIV and AIDS.

68. Bhave G G , et.al: *HIV Surveillance & Prevention,* Seth G S Medical College & K E M Hospital, Bombay

This paper reviews the HIV control programmes and activities of Seth G S Medical College, Bombay over the period 1986-92. It illustrates the potential socio-medical role of hospitals in HIV control and management in India.

69. Singh P G: *AIDS Cases in Manipur Prisons,* Government of Manipur, Inspector-General of Prisons, Imphal , Manipur

This paper highlights the importance of attitudes to HIV positive cases, shown by top administrators, in promoting social acceptance of HIV/AIDS cases in society, keeping in view the example of Manipur prisons. Shaking hands and easy social mixing with HIV patients by the Inspector General of Prisons resulted in better social acceptance of the HIV positive persons and AIDS. patients.

70. Bhimani G, et.al: *Discrimination Against HIV Positive People,* Indian Health Organization, Bombay.

Major issues are surfacing with regard to stigmatization of HIV positive individuals. This paper focusses on the issues relating to discrimination by society and professionals against HIV positive individuals, based on experiences in a variety of social and professional care settings.

71. Sankaran S: *Strategies for AIDS Education - Work Place,* Deepam Educational Society for Health, Madras

Unskilled and semiskilled labourers employed in public sector undertakings are known to practise high risk behaviours due to better economic status but low awareness of health behavour. This paper outlines the strategies employed by a voluntary organizations for AIDS education among dock-workers in Madras. The strategies and content of the health education programme

were based on findings of a KAP study which showed high level of illiteracy combined with high wage packet and high risk life style of these workers.

72. Goswami A, et.al: *Sexual Behaviour Pattern and Awareness of STDs & AIDS in Youth of Urban Slums of Delhi*, All Indian Institute of Medical Sciences, New Delhi

Youth in the slums form a high risk group for unsafe sex practices. This study of awareness about STD and HIV reports very low to nil awareness of STD and AIDS among urban slum youth of Delhi aged 15-35 years.

73. Balaganesh G, et.al: *A Study on the Awareness of AIDS in Indian Communities*, Sri Venkateswara Medical College , Tirupati.

This study covering knowledge, attitude, and practices relating to HIV in urban and rural population (aged 15-45 years) of the backward district of Chittoor, Andhra Pradesh, found that 67% of this rural population and 91.5% of urban population had heard about AIDS, 45.5% of rural population and 63.9% of urban population were aware of the modes of spread. 19.4 % of literates in the rural community and 42.6% of urban literates were aware of the protective effect of condoms in limiting spread of HIV. Majority had got the information through Doordarshan (TV) and news media. In the urban area (Tirupati), Lion's club and Women's Organizations had contributed to this awareness.

74. Bhattacharya R: *AIDS - A Campaign for Teenagers/Adolescents*, SIRMCE, Ellisbridge, Ahmedabad.

Voluntary effort by peers to educate youth is very important for HIV control. This paper presents the experience of voluntary effort for AIDS education among adolescents and teenages, by a young teenaged student, who was inspired by a television news item on a famous young pianist, who succumbed to AIDS acquired by a blood transfusion.

75. Manisha B K : *Project Saheli : A Peer Education Model*, Indian Health Organization, Bombay

This paper documents the experiences of an AIDS education programme through peers in brothels of Bombay covering over 4000 commercial sex workers. Project Saheli resulted in substantial increase in condom usage, and decrease of STD, as well as tremendous improvement in AIDS awareness.

76. Mukherjee B & Chatterjee M: *HIV-Knowledge, Belief and Behaviour among different Classes of Indian Community*, Jadavpur University, Calcutta

This paper documents the findings of an extensive KAP study across a cross section of society. 99% of low socio-economic group (labourers) had no information about AIDS. Intellectuals

(professionals and teaching community) were reluctant or indifferent to answer any queries, and 85% of the business class had a vague idea about AIDS.

77. Sehgal P M & Singh S : *Knowledge, Attitude, Beliefs & Practices Study on AIDS in Manipur State, and Its Role in Developing Interventions*, Voluntary Health Association of India, New Delhi.

Keeping in view very high transmission of HIV in Manipur, this KAP study was conducted. This paper documents the awareness of HIV among 1020 persons in Manipur State. The study showed widespread awareness of the HIV-AIDS problem as well as widespread stigma attached to HIV positive persons.

78. Mehendale S M, et.al: *Serological and Behavioural Profile of CSWs of Bhiwandi, Maharashtra*, National Institute of Virology, Pune, Maharashtra

This paper documents the findings of a epidemiological-cum-sero-surveillance study among commercial sex workers of Bhiwandi, an industrial township 50 kms from Bombay. A HIV prevalence of 33.7% was observed. Each CSW entertained on an average 3.4 clients per day but number of clients did not correlate with HIV positivity. Average daily income was Rs. 35/- and only 13% were willing to give up the profession for an alternative.

79. Thirumalaikolundusubramaniam P, et.al : *KABP Studies on AIDS Among Doctors,* Madurai Medical College, Madurai

For HIV control, awareness and action-orientation of medical professionals and specialists is of paramount importance. This paper documents findings of a KAP study among practising specialists of a major city. 86% of doctors including surgeons and obstetrians were least bothered even about the risk to themselves since they felt they were not at risk but only dermatologists and laboratory specialists were at risk.

80. Kumar R: *Preventing High Risk Behaviour of Truck Drivers,* Jawaharlal Nehru University, New Delhi.

Prevention of inter-State transmission requires an effective control programme among truck drivers. This paper presents innovative approaches to prevention of HIV-high risk behaviour among truck drivers, through dhaba meetings, video shows and other entertainment-cum-educative performances.

81. Ahmed S I: *Truck Drivers as a Vulnerable Group in North East India*, Assam Imdadiya Hospital Committee, Guwahati, Assam

What are the risk factors among truck drivers leading to high HIV risk? This paper presents an analysis of factors contributing to high HIV risk for inter-State truck drivers servicing the North

Eastern States. 82% of 506 truck drivers had regular sexual contact with commercial sex workers on the highway, 15% indicated history of homosexual contact, 36% gave history of treatment for STD, none used condoms, and 40% used cannabis, and 1.4% used injectable heroin on and off.

82. Singh Y N, et.al: *Truck Drivers: their possible role in disseminating HIV to rural India,* Prince Henry Hospital, Sydney, Australia.

This paper presents an analysis HIV risk behaviour among truck drivers in Delhi in1988. Findings were similar to those among truck drivers in the North Eastern Region.

83. Maniyosai R, et.al: *HIV Risk Behaviours, Knowledge and Sero Status of STD Patients in Madurai City, Tamil Nadu, India,* Madurai Kamaraj University, Madurai.

This study report documents findings of a socio-epidemiological study related to HIV risk behaviour among STD patients in Madurai. Unfavourable behaviour and attitudes to risk behaviour as well as to condom use, were found to be highly correlated with illiteracy.

84. Kumar A & Krishnamachari KAVR: *HIV Spread: Role of Behavioural Factors*, Regional Medical Research Centre (ICMR), Bhubaneswar, Orissa

A model of HIV spread depending on the various behavioural factors and duration of asymptomatic infectiousness, has been worked out. Based on this, projections of HIV prevalence and its epidemiology by the year 2000 are projected.

Abbreviations & Acronyms Commonly used in Literature related to HIV and AIDS

HIV	=	Human Immuno-deficiency Virus
AIDS	=	Acquired Immuno-deficiency Syndrome
IDU/IVDU	=	Intravenous Durg User
CSW	=	Commercial Sex Worker (Prostitute)
HRG	=	High Risk Group i.e. sexually promiscuous, homosexual, intravenous drung user or professional blood donor
CBD	=	Commercial Blood Donors

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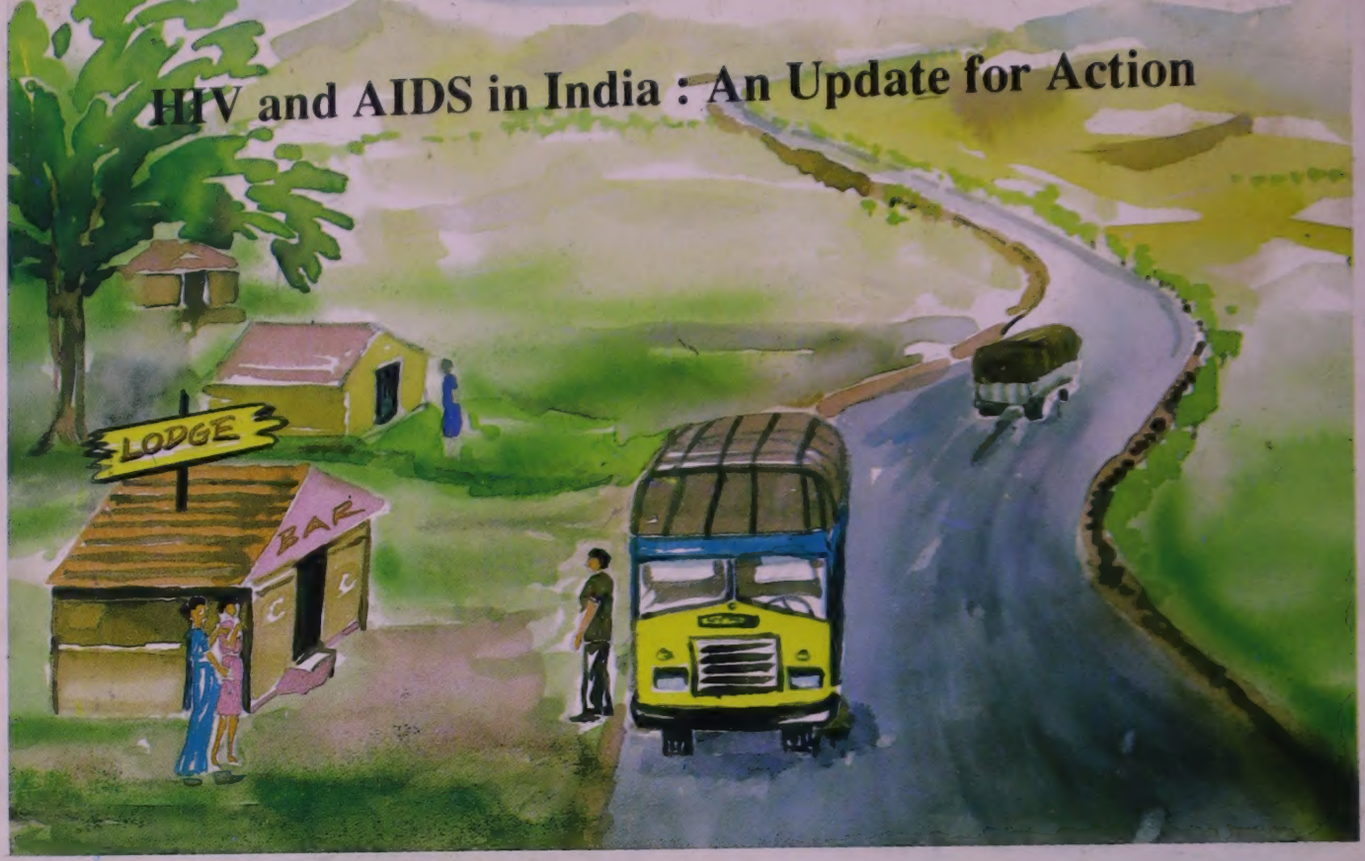
HIV and AIDS in India : An Update for Action



The Human Immuno-Deficiency Virus (HIV) causes Acquired Immuno Deficiency Syndrome (AIDS), after silent incubation period of six months to six years. There is no hope of discovering a cure or vaccine in the near future, and AIDS continues its silent advance, threatening to become the second Black Plague of the 20th (and 21st) Century.

One million of the world's nine to eleven million HIV infected cases are in India. Barely seven years from now, by 2000, India is expected to have 10 million HIV positive individuals, one fourth of the world's total of forty million cases. Majority will be housewives and children.

What are the origins of this fatal disease? How does it spread? How do we detect HIV infection in an individual? How does the disease manifest? AIDS vis-a-vis TB ? AIDS vis-a-vis neuro-psychiatric problems? How would AIDS affect socio-economic development, agricultural and industrial productivity of India ?

And, how do we prevent HIV- AIDS from becoming the most destructive epidemic which can carry away young adults, teenagers, mothers and children, indeed whole families, with tragic socio-familial consequences for several generations? What is the role of government, private and voluntary hospitals, social institutions, schools, colleges, industrial organizations, professional societies, and voluntary organizations?

This Publication answers the above questions and suggests approaches to meet the challenge of HIV and AIDS in India. It is a guide for professionals and administrators to plan and implement AIDS prevention and treatment programmes. It is a guide for every Indian citizen, housewife, student, office worker, truck driver or teacher to understand this disease and protect oneself and one's fellow beings from the clutches of AIDS.